French Prairie Bridge Project
Memorandum

Date: December 5, 2018

To: Project Task Force

From: Project Management Team

RE: Task Force Meeting #4 – Project Update

Please find included with this memorandum the meeting packet for the French Prairie Bridge project Task Force meeting #4 to be held on Wednesday, December 5, 2018. At this meeting, the project team will provide an overview of the preferred bridge location selection, the five bridge types, summary of input received from the Technical Advisory Committee and public feedback from the open house events.

At the Task Force meeting, Task Force members will be invited to share and discuss their assessment of the five bridge types. At the conclusion of the meeting, the Task Force is expected to recommend the top two preferred bridge designs for further study to the Wilsonville City Council.

The meeting packet includes:

To aid in Task Force members preparation for the Task Force meeting, images and an assessment summary of the five proposed bridge types begins on Page 5 of the meeting packet. For comparison purposes, a summary of the bridge type assessments is provided on Page 12. For those Task Force members interested in the details of the bridge type assessment, the Bridge Type Evaluation Report begins on Page 13.

The Technical Advisory Committee (TAC) reviewed the five bridge types at their meeting on October 3, 2018. The TAC provided input on the assessment of the bridge types and recommended that one of the steel

bridge types and one of the cable/suspension bridge types move forward for further study. The TAC found that the two bridges in each of these groups have similar characteristics and selecting one bridge from each group will offer a good comparison of the range of impacts and costs. A detailed discussion of the TAC meeting is provided starting on Page 57.

Public input on the five bridge types occurred through an in-person open house on October 18, 2018 and an online open house held October 11-30, 2018. Of the 263 completed questionnaires, respondents viewed the cable-stay and suspension bridge types more favorably and were the only two bridge types where more than 50% of the respondents agreed that the positive benefits outweigh the costs and negative impacts. A summary of public input regarding bridge type can be found beginning on Page 63.

For additional information, such as project technical reports, please visit the project webpage at www.frenchprairiebridgeproject.org.

French Prairie Bridge Project
Task Force
Meeting Agenda
Wednesday, December 5, 2018
6-9 PM

Wilsonville City Hall
29799 SW Town Center Loop E, Wilsonville, OR
Willamette River Rooms I & II

Meeting Objectives:

- Review alignment selection decision
- Present bridge type selection and public engagement processes
- Discuss and receive comments on draft Bridge Type Evaluation Report
- Review and advise on the ranking of the five bridge types

1. Welcome and Meeting Purpose 6:00-6:15 pm
   - Co-Chairs Councilor Charlotte Lehan and County Chair Jim Bernard
   - Anne Pressentin, Meeting Orientation
   - Zach Weigel, Meeting Purpose

2. Project Review 6:15-6:30
   - Zach Weigel, Overview
   - Project Purpose & Goals
   - Bridge Location Selection
   - Schedule

3. Public Comment 6:30-6:45

4. Bridge Type Selection Process 6:45-8:15
   - Bob Goodrich, Overview
   - Evaluation
   - Discussion

5. Recommendation for City Council 8:15-8:45

6. Next Steps 8:45-8:50
   - Bob Goodrich

7. Closing comments 8:50-9:00
   - Co-Chairs Councilor Charlotte Lehan and County Chair Jim Bernard
   - Adjourn

Community members will be invited to provide public comment during the time indicated as time allows. Written comments are always welcome by emailing Project Manager Zach Weigel and will be shared with Task Force members.

FRENCH PRAIRIE BRIDGE PROJECT

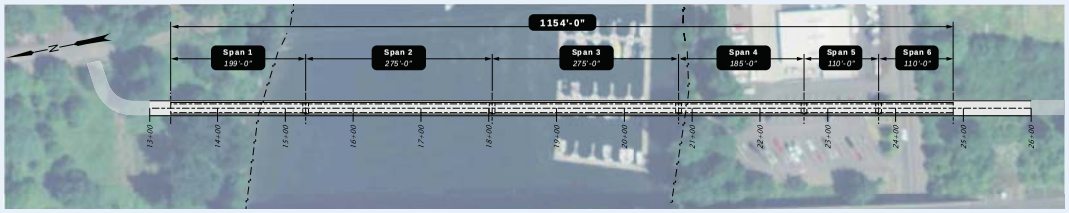
PROJECT AREA

Project Criteria

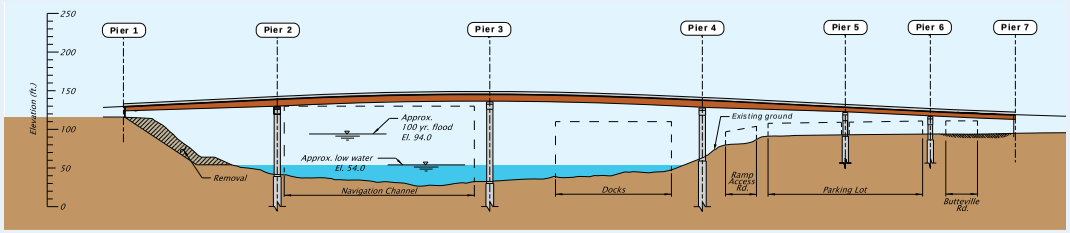
- Connects to existing or planned bike/pedestrian routes
- Provides direct and rapid emergency vehicle access
- Avoids adverse impacts on environmental resources
- Maximizes recreational benefits
- Compatible with built environment
- Minimizes cost and adverse economic impacts

FRENCH PRAIRIE BRIDGE PROJECT

STEEL GIRDER BRIDGE



Plan view of Steel Girder bridge



Profile line drawing of Steel Girder bridge

Example Steel Girder Bridge

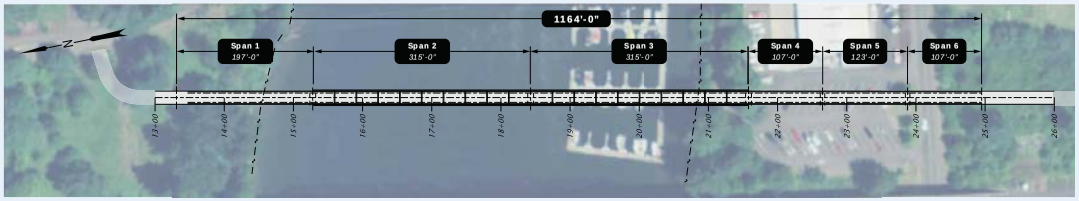
Springwater Trail Steel Girder bridge

Criteria	Suitability
Cost and Complexity	
Least cost	●
~2-year construction duration	●
Longest permitting duration	○
Most risk to cost and schedule for in-water work	○
Constructible by local contractors	●
Temporary Impacts	
Foundation construction in the river channel	○
Temporary bridge supports in the river, reducing navigational channel and impacting marina	○
Access and staging on both sides of the river, causing moderate impacts to Boones Ferry Park and high impacts to dock area and marina parking	◉
Permanent Impacts	
Three piers in river channel	○
One pier in marina parking lot	○
Grading in Boones Ferry Park for higher bridge deck/deeper girders	◉
Potential dock area impacts due to proximity of new pier	○
Regrade river banks to mitigate floodway impacts	○
Aesthetic considerations	
Unobstructed views, least visual impact	n/a

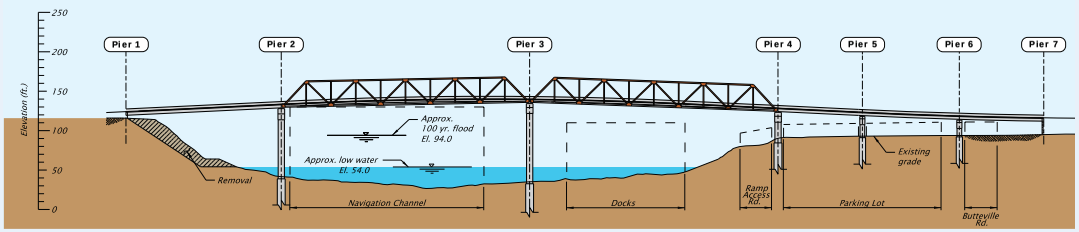
The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles (●) indicate best suitability and least adverse impact while empty circles (○) indicate least suitability and most adverse impact.

FRENCH PRAIRIE BRIDGE PROJECT

STEEL TRUSS BRIDGE



Plan view of Steel Truss bridge



Profile line drawing of Steel Truss bridge

A Steel Truss bridge within the project area

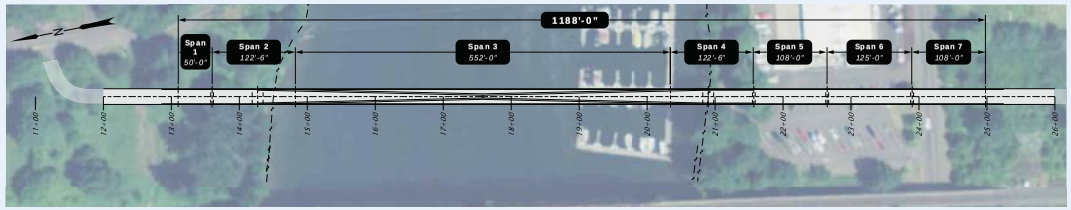
A Steel Truss bridge

Criteria	Suitability
Cost and Complexity	
Cost is ~15-30% greater than steel girder	●
~2-year construction duration	●
Longest permitting duration	○
Most risk to cost and schedule for in-water work	○
Requires some specialty fabrication	◉
Temporary Impacts	
Foundation construction in the river channel	○
Temporary bridge supports in the river, reducing navigational channel and impacting marina	○
Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park and high impacts to dock area and marina parking	◉
Permanent Impacts	
Two piers in river channel	○
One pier in marina parking lot	○
Minor grading in Boones Ferry Park	●
Potential dock area impacts due to proximity of new pier	○
Regrade river banks to mitigate floodway impacts	○
Aesthetic considerations	
Matches railroad bridges, bulky	n/a

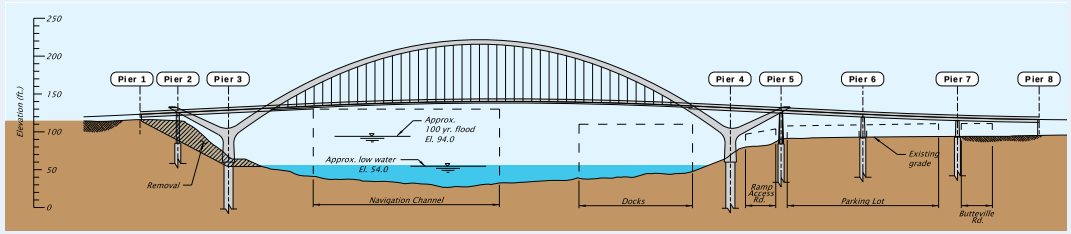
The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles (●) indicate best suitability and least adverse impact while empty circles (○) indicate least suitability and most adverse impact.

FRENCH PRAIRIE BRIDGE PROJECT

TIED-ARCH BRIDGE



Plan view of Tied-Arch bridge



Profile line drawing of Tied-Arch bridge

Minto Island Tied-Arch bridge, Salem

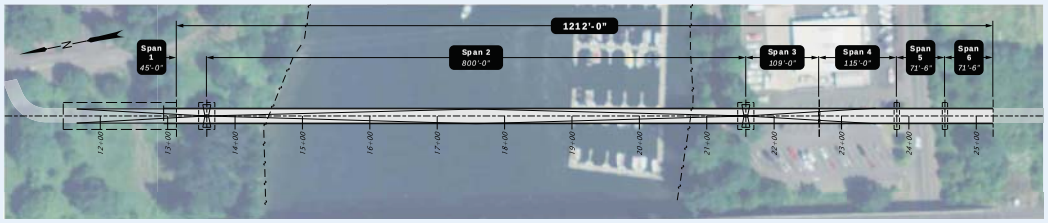
Tempe Town Lake Tied-Arch Bridge, AZ

Criteria	Suitability
Cost and Complexity	
Cost is ~90-100% greater than steel girder	○
~3+ year construction duration	○
Long permitting duration	○
Most risk to cost and schedule for in-water work	○
Requires specialty contractors	○
Temporary Impacts	
Foundation construction in the river channel	○
Temporary bridge supports in the river, reducing navigational channel and impacting marina	○
Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park, high impacts to dock area and moderate impacts to marina parking	●
Permanent Impacts	
Two piers on river banks	◉
One pier in marina parking lot	○
Minor grading in Boones Ferry Park	●
No dock area impact	
Regrade river banks to mitigate floodway impacts	○
Aesthetic considerations	
Signature bridge. Engineering supports require steel tubes about three feet in diameter which increases the mass of the structure.	n/a

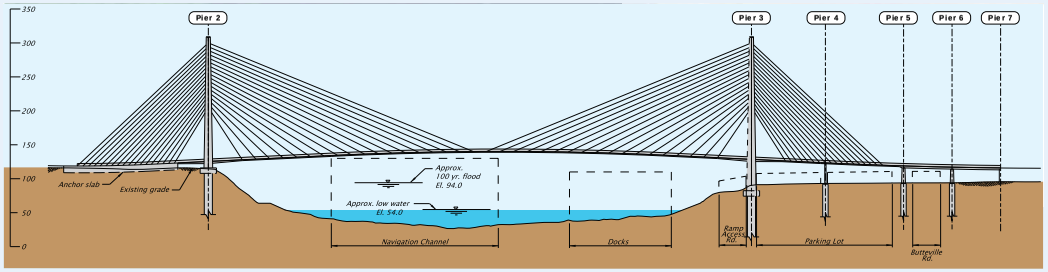
The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles (●) indicate best suitability and least adverse impact while empty circles (○) indicate least suitability and most adverse impact.

FRENCH PRAIRIE BRIDGE PROJECT

CABLE-STAYED BRIDGE



Plan view of Cable-Stayed bridge



Profile line drawing of Cable-Stayed bridge

Elbe River Cable-Stayed bridge, Czech Republic

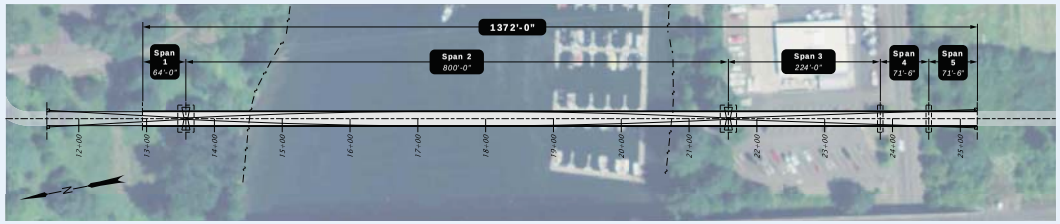
Gateway Cable-Stayed bridge, Eugene

Criteria	Suitability
Cost and Complexity	
Cost is ~70-90% greater than steel girder	●
~3-year construction duration	○
Shortest permitting duration	●
Least risk to cost and schedule for in-water work	●
Requires specialty contractors	○
Temporary Impacts	
No foundation construction in the river	●
No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●
Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◉
Permanent Impacts	
No piers in river	●
Potentially one pier in marina parking lot	◉
Anchorage for stay cable in the north end of Boones Ferry Park	○
No dock area impact, but boat launch road must be realigned	◉
No floodway impacts	●
Aesthetic considerations	
Signature bridge. See-through main span. Tallest pylons at 160 feet above the bridge deck.	n/a

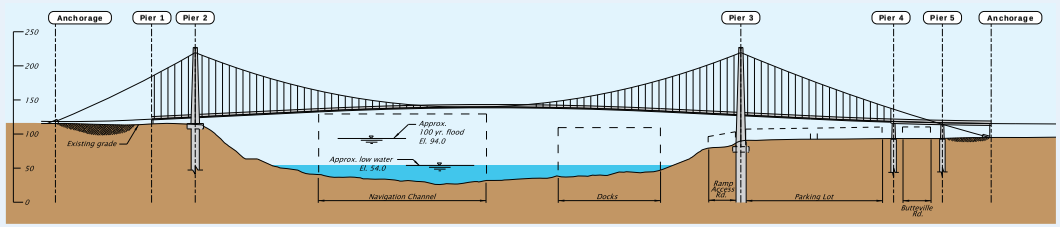
The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles (●) indicate best suitability and least adverse impact while empty circles (○) indicate least suitability and most adverse impact.

FRENCH PRAIRIE BRIDGE PROJECT

SUSPENSION BRIDGE



Cross section of Suspension bridge



Profile line drawing of Suspension bridge

DeFazio Suspension Bridge

Fort Edmonton Park Suspension Bridge, Alberta

Criteria	Suitability
Cost and Complexity	
Cost is ~70-90% greater than steel girder	◉
~3-year construction duration	○
Shortest permitting duration	●
Least risk to cost and schedule for in-water work	●
Requires specialty contractors	○
Temporary Impacts	
No foundation construction in the river	●
No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●
Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◉
Permanent Impacts	
No piers in the river	●
No pier in marina parking lot	●
Anchorage for suspension cable in the north end of Boones Ferry Park	○
No dock area impact, but boat launch road must be realigned	◉
No floodway impacts	●
Aesthetic considerations	
Signature bridge. See-through main span. Shorter pylons than cable-stay bridge at 80 feet above the bridge deck.	n/a

The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles (●) indicate best suitability and least adverse impact while empty circles (○) indicate least suitability and most adverse impact.

French Prairie Bridge Project

Bridge Type Assessment
October 2018

The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles indicate best suitability and least adverse impact while empty circles indicate least suitability and most adverse impact.

	Steel Girder		Steel Truss		Tied-Arch		Cable-Stayed		Suspension	
Cost & Complexity	Least cost	●	Cost is ~15-30% greater than steel girder	●	Cost is ~90-100% greater than steel girder	○	Cost is ~70-90% greater than steel girder	◘	Cost is ~70-90% greater than steel girder	◘
	~2 year construction duration	●	~2 year construction duration	●	~3+ year construction duration	○	~3 year construction duration	○	~3 year construction duration	○
	Longest permitting duration	○	Longest permitting duration	○	Long permitting duration	○	Shortest permitting duration	●	Shortest permitting duration	●
	Most risk to cost and schedule for in-water work	○	Most risk to cost and schedule for in-water work	○	Most risk to cost and schedule for in-water work	○	Least risk to cost and schedule for in-water work	●	Least risk to cost and schedule for in-water work	●
	Constructable by local contractors	●	Requires some specialty fabrication	◘	Requires specialty contractors	○	Requires specialty contractors	○	Requires specialty contractors	○
Temporary Impacts	Foundation construction in the river channel	○	Foundation construction in the river channel	○	Foundation construction in the river channel	○	No foundation construction in the river	●	No foundation construction in the river	●
	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●	No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●
	Access and staging on both sides of the river, causing moderate impacts to Boones Ferry Park and high impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park and high impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park, high impacts to dock area and moderate impacts to marina parking	●	Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◘
Permanent Impacts	Three piers in river channel	○	Two piers in river channel	○	Two piers on river banks	◘	No piers in river	●	No piers in the river	●
	One pier in marina parking lot	○	One pier in marina parking lot	○	One pier in marina parking lot	○	Potentially one pier in marina parking lot	◘	No pier in marina parking lot	●
	Grading in Boones Ferry Park for higher bridge deck/deeper girders	◘	Minor grading in Boones Ferry Park	●	Minor grading in Boones Ferry Park	●	Anchorage for stay cable in the north end of Boones Ferry Park	○	Anchorage for suspension cable in the north end of Boones Ferry Park	○
	Potential dock area impacts due to proximity of new pier	○	Potential dock area impacts due to proximity of new pier	○	No dock area impact	●	No dock area impact, but boat launch road must be realigned	◘	No dock area impact, but boat launch road must be realigned	◘
	Regrade river banks to mitigate floodway impacts	○	Regrade river banks to mitigate floodway impacts	○	Regrade river banks to mitigate floodway impacts	○	No floodway impacts	●	No floodway impacts	●

DRAFT

Bridge Type Evaluation Report

October 2018

Prepared for the City of Wilsonville

Prepared By

OBEC Consulting Engineers
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Lake Oswego, OR 97035
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APPENDICES

Introduction

The City of Wilsonville is undertaking a project to develop preliminary designs for the French Prairie Bridge, a proposed bicycle/pedestrian/emergency vehicle crossing of the Willamette River between Interstate 5 (I-5) and the Portland and Western Railroad Bridge. The project addresses bridge location, bridge type selection, 30% design, and preliminary environmental documentation. In May 2018, City Council approved the Task Force's recommended Alignment, W1, as shown in Figure 1.

Prior to preparation of this report, the project team performed preliminary investigations of the project site and compiled the resulting information into reports. These reports were prepared using the project team's best judgement, and were supplemented with guidance offered by the Technical Advisory Committee (TAC). This information is summarized in the Opportunities and Constraints Report.

Following development of the Opportunities and Constraints Report, the project team, with input from the TAC, Task Force, an open house, Wilsonville City Council, and Clackamas County Board of Commissioners (BCC), prepared a list of criteria to evaluate the relative merits of each location. These criteria are based on the needs and values of the community, including City and County goals. The Task Force assigned relative weighting to the criteria to provide for a quantitative comparison of the locations. This work is summarized in the Evaluation Criteria Memo.

The project team then prepared the Location Selection Summary, which served as a capstone document for determining and documenting the preferred bridge location using the information prepared in the technical reports, Opportunities and Constraints Memo, and Evaluation Criteria Memo.

This report focuses on evaluation of bridge types. The discussion below presents the proposed selection criteria and range of bridge types, a description of each of the five considered bridge types, and a brief description of types considered infeasible. The report concludes with an assessment summary of the alternatives. Input from the October 2018 TAC meeting has been incorporated. The next steps include requesting public input, meeting with the citizen task force and finally, the BCC and the Wilsonville City Council selecting two bridge types for further evaluation.

The assessment summary for the five alternatives is included in Appendix A.

Design Criteria and Constraints

Any bridge at French Prairie must meet minimum functionality requirements and effectively address site constraints. The proposed bridge is intended to serve multiple functions. It will provide a safer river crossing for bicyclists and pedestrians than currently provided by the I-5 structures. It will also provide an alternative route for emergency vehicles when I-5 is blocked and

access across the Willamette River is required. Finally, it will provide a redundant crossing in case of a major seismic event.

The design pedestrian loading for a pedestrian bridge is 90 pounds per square foot. At a minimum, the HS20 truck, a notional 3-axle, 72,000-pound design loading, will be considered for emergency and post-seismic event vehicle use. Typically, the pedestrian load, when applied over the entire structure, is heavier than a single emergency vehicle. The heavy point loads associated with emergency vehicle wheels tend to control the design of localized elements and connections. The proposed bridge will be designed to remain serviceable following a Cascadia Subduction Zone event and to avoid collapse during the 1,000-year return period earthquake.

The recommended bridge width is 17 feet, based on the potential for simultaneous emergency vehicle and recreational use. A vehicle travel lane is typically 12 feet, and Oregon Department of Transportation's (ODOT) minimum sidewalk width is five feet. These two items serve as the basis for the bridge width recommendation.

The route will need to comply with the requirements of the Americans with Disabilities Act (ADA). The maximum slope along the path cannot exceed five percent. The maximum cross slope cannot exceed two percent. Recommended maximum slopes of 4.8 percent and 1.5 percent, respectively, allow for construction tolerances.

The minimum radius of curvature used on the path needs to accommodate both the design speed for bicycle use and off tracking of large emergency vehicles. A design speed of 20 miles per hour for cyclists using a 20-degree lean angle results in a radius of 74 feet. This radius accommodates most emergency vehicles with minimal off tracking.

The Willamette River is a navigable waterway regulated by the United States Coast Guard (USCG). Preliminary consultation with the USCG and river users has indicated that a new crossing of the Willamette River must provide a navigational clearance comparable to the bridges located immediately upstream and downstream. This results in a minimum horizontal clearance of approximately 240 feet and a minimum overhead obstruction elevation of 130 feet, which is 76 feet above the approximate low-water surface elevation of 54 feet. Temporary reductions in the navigational channel may be negotiated with the USCG and the Oregon State Marine Board (OSMB).

The bridge will need to comply with FEMA Floodway regulations. This project area is within a regulated floodway. New bridge piers located within the FEMA floodway will require mitigation to prevent a rise in the 100-year flood elevation.

In addition to USCG navigational requirements, the selected alignment passes over the Boones Ferry Marina and Boones Ferry Boat Ramp access road and parking area.

A desktop study of the geotechnical site setting has been performed. This investigation researched existing records of subsurface explorations in the

project area and concluded that the site is predominantly alluvial deposits (silts, gravels, and sands) over the Troutdale Formation (stiff clays). These soils will require deep foundations in the form of driven piles or drilled shafts.

The alluvial deposits vary in density and composition and may be subject to liquefaction, depending on water table elevation and intensity of shaking during an earthquake. Lateral spread and seismic-induced slope instability are risks on both river banks. The detailed bridge design will need to address these issues to comply with the seismic design criteria. Significant additional investigations, testing, and analyses will be required to determine what, if any, mitigation is necessary.

Selection Criteria

The bridge type selection process has three phases. The first phase involves identifying bridge structure types that are potentially suitable for the French Prairie Bridge, given the site constraints. The second phase includes a preliminary evaluation of each type of structure. The bridge types are then compared and the two most suitable bridge types are selected for further investigation. Finally, a more rigorous investigation of the two remaining structure types will be performed in phase three. The available data will then be analyzed to determine the most suitable structure type for the French Prairie Bridge.

All potentially suitable alternatives meet the minimum functionality criteria discussed above, and were investigated considering the opportunities and constraints previously identified. The project team compared the bridge types with respect to project economics, constructability, impacts, and bridge aesthetics. A discussion of each criterion is included below. To conclude this phase of the evaluation process, the project team prepared an Assessment Summary, which is located in Appendix A.

Economics

This criterion is related to initial and long-term project costs. It is also related to how soon the bridge could be in service measured from the time funding is secured.

Design & Construction Cost – Bridge types that are less time-consuming to design and less expensive to construct are preferred.

Design & Construction Duration – Simple bridge types, or those with fewer stages of construction and conventional access requirements, will take less time to design and build. Permits can potentially be secured more easily and quickly for bridge types with less in-water footprint. Bridges that avoid permanent in-water impacts may qualify for programmatic permitting. Bridge types that can be completed sooner provide a greater local and regional economic benefit and minimize the effect of inflation on overall project costs. Types achieving these objectives are preferred.

Maintenance – Simpler structural systems and bridge types with fewer components or that are easier to access and inspect are preferred.

Constructability

This criterion is related to how each bridge is constructed, specifically focusing on site access requirements and overall complexity. Access considerations include the necessary staging and work areas, the need for temporary work roadways and/or bridges, and whether or not cofferdams will be necessary. Complexity is considered to include overall construction sequencing, equipment and technology needs, construction materials, and anticipated contractor capabilities.

Substructure Access Requirements – Depending on the bridge type, the substructure's foundation elements and configuration may vary significantly. Different configurations and elements will have different equipment, staging, and access requirements. Foundation elements could include driven piles, prebored piles, or drilled shafts that support columns, piers, or towers. Factors affecting the score include the type, number, location, and size of foundation elements and supported members. Bridge types that avoid or minimize the number of foundation elements in the water, particularly the deeper sections of the river where access is more challenging, or at the water's edge are preferred.

Substructure Complexity – Depending on the bridge type's foundation elements and configuration, the complexity to design and construct the substructure elements can vary significantly. Factors considered include the overall arrangement and configuration of individual bridge foundation elements and supported members, any construction staging or sequencing of the elements, and the capabilities of local contractors to perform the work. Bridge types with less complex foundation elements are preferred. Bridge types with arch rib or pylon foundations are more complex than those with only typical columns.

Superstructure Access Requirements – Depending on the bridge type, the superstructure's girder and deck elements and configuration may vary significantly. Different configurations and elements will have different equipment, staging, and access requirements. Superstructure elements could include steel girders, trusses, cables, arches, and precast concrete deck panels. Factors considered include the type, number, placement method, and size of superstructure elements. Bridge types that are more readily constructible and limit access needs in or above the water are preferred.

Superstructure Complexity – Depending on the bridge type's girder and deck elements and configuration, the complexity to design and construct the superstructure elements can vary significantly. Factors considered include the overall arrangement and configuration of individual elements, how these elements connect to the substructure, any construction staging or sequencing of the elements, and the capabilities of local contractors to perform the work. Bridge types with less complex superstructure elements

are preferred. Bridges with arch ribs and/or cable systems and precast deck panels are more complex than those with typical girder and deck systems.

Impacts

This criterion is related to the overall site impacts resulting from temporary construction access and staging needs, as well as the permanent project impacts associated with the bridge's footprint. A range of impacts are considered, from natural and cultural resources to physical constraints, such as navigational clearance and public and private property. The impacts will be organized and described by area, as shown in Figure 1.

Temporary Resource Impacts – Bridge types with less temporary construction impact to archeological and historic resources; terrestrial habitat and wildlife; waters and wetlands; and State and Federally managed species are preferred.

Temporary Built Environment Impacts – Bridge types with less temporary construction impact to private residences; public parks; marina property and structures; the river floodway and its navigational channel; railroad property; and existing utilities are preferred.

Permanent Resource Impacts – Bridge types with less permanent impact to archeological and historic resources; terrestrial habitat and wildlife; and waters, wetlands, and aquatic wildlife are preferred.

Permanent Built Environment Impacts – Bridge types with less permanent impact to private residences; public parks; marina property and structures; the river floodway and its navigational channel; railroad property; and existing utilities are preferred.

Aesthetics

Aesthetic considerations relate to the bridge's setting, user experience, and visual impact. Though aesthetic preferences are subjective, preference will be given to the bridge types that look appropriate within the site and relate to the surrounding natural and built environments. The team also considered whether the appearance of the bridge would be a draw to users beyond just the utilitarian function. This helps determine whether the bridge type should blend in or stand out as a signature structure.

Bridge Types Considered

Five bridge types have been identified as most suitable for this project site: steel girder, steel truss, tied-arch, cable-stayed, and suspension. The following five sections evaluate these bridge types against the criteria presented above.

Steel Girder

Steel girders consist of either I-beams or a box. Individual segments can be spliced together through bolted connections.

Springwater Trail Bridges: Johnson Creek Crossing, Portland, OR

The proposed steel girder alternative consists of I-girders cut from steel plate and welded together. The steel could be uncoated weathering steel or painted. A concrete deck would be placed on the girders. The heights of the girders can be increased at the supports, at an additional cost, to improve structural efficiency and provide architectural interest. To maintain visual consistency, the approach spans would also use welded steel plate girders.

An approximate structure layout was performed. As initially visualized, the structure consists of two frames. The north frame crosses the river and extends to the middle of the parking lot with spans of 185'-275'-275'-185'. The south frame continues from the north frame, ending south of Butteville Road with two 110-foot spans. See Figure 2 for elevation and section views.

This alternative is being evaluated as it is capable of economically achieving the necessary span lengths with appropriate structure depths and temporary impacts, given the project constraints. This structure type is commonly constructed by local bridge fabricators and contractors, and is similar to the I-5 bridges downstream.

Steel box girders could be considered, but are significantly more expensive than the I-beams. These structures are best suited for highly curved horizontal alignments, which are not required for this project. In addition to the higher construction cost, box girders are more difficult to inspect due to the enclosed space.

Economics

Design & Construction Cost and Duration

Of all the alternatives analyzed, the welded steel plate girder is the most straight-forward to design and construct. The substructures would likely be single columns on large-diameter drilled shafts. No unique analysis or design tasks are required. The design duration would be approximately one year.

Based upon input from the TAC, permitting the in-water piers will potentially require some individual approvals from regulatory agencies that add time and cost to the design phase. There could also be off-site mitigation required that would add time to locate the mitigation area and complete the design, as well as add cost to design and construct the mitigation.

The construction cost of this structure is the least of all the alternatives considered. The construction duration would be approximately two years. Due to the extensive in-water construction, there is an increased risk of delays because of the annual in-water work window that prescribe the period when the contractor is allowed to work within the river.

Maintenance

Maintenance of a steel girder pedestrian bridge is similar to maintenance of steel girder highway bridges, which are common in the area. The highest maintenance cost typically associated with steel bridges is related to the coating (paint) systems. The use of weathering steel will minimize or eliminate this consideration. Other common maintenance items are expansion joints and girder bearings.

The routine condition inspection of a steel girder bridge is similar to the regularly scheduled bridge inspections for highway bridges, except at a longer interval between inspections. There are a number of connections between various steel members, such as the splices and cross frames, that will need to be inspected regularly. Inspection access walkways and ladders can be included as part of the design to aid in this work. Under-bridge inspection trucks (UBITs, "snooper cranes") or other similar equipment would occasionally be required to closely inspect the exterior faces of the girders. Designing the superstructure as a three-girder system, as shown in Figure 2, eliminates the higher level of inspection required for fracture-critical structures.

The steel plate girder bridge would require three in-water piers, which increases the risk of debris accumulating on the bridge. It also requires underwater inspections by divers at a minimum of every five years.

Constructability

Access Requirements

There would be piers located in the river on either side of the navigation channel. The drilled shafts for these piers would need to be constructed from a work bridge or barge. With the locks at Willamette Falls currently closed, the practicality of getting a barge of adequate size to the project site needs to be investigated, but it appears that modular systems could be employed.

Access from the north shore to the pier north of the navigation channel would be via a work bridge extending from the ferry access road, approximately 400 feet downstream. Access to a work bridge for the piers in the river between the navigation channel and the south shore would be challenging to locate without impacting the use of a portion of the Boones Ferry Marina dock. This work bridge would start from the boat ramp access road, located west of the dock and east of the railroad bridge. The remaining pier locations on the south bank are all easily accessed.

Installation of the girders would require a combination of barges (if used) and cranes. Shoring towers may be required to temporarily support girder segments. Girder placement over the boat dock is the most challenging

location. There are numerous ways the girders could be placed in this location with varying impacts to the dock, ramp access road, and parking lot. For this analysis, it was assumed that temporary shoring towers could be placed within the limits of the boat dock, resulting in the lowest construction cost. A work containment system and short closure windows would be required to prevent debris from falling on the dock below during a variety of work tasks.

Complexity

This bridge type is seen as relatively simple to build when there is good access. It is more complicated if barges, girder launching, and/or hanging splices are required. The girders, while large, are within the capabilities of steel fabricators located in the Portland area. Due to the slenderness of the girders, stability of the individual girder segments would likely require additional temporary shoring towers in the river. Construction of the piers in the deep portion of the river is a work item not typically accomplished by local contractors. This work also represents an increased risk to the project, because of the extensive in-water work, as previously explained.

Impacts

The various impacts to the project site resources and built environment are summarized below as permanent or temporary. Impacts are discussed according the six areas identified on Figure 1.

Resource Impacts

Permanent Impacts

Boones Ferry Park – There will be a loss of upland vegetation and open space in the undeveloped portion of Boones Ferry Park west of Boones Ferry Road, including in the historic orchard further north.

North Bank – There will be a loss of riparian vegetation where the bridge crosses, both at the top of the bank and under the bridge. The three piers within the floodway will require mitigation to avoid raising the flood elevation. Excavating along the north bank is the most likely mitigation. Since this river bank is steep and the required area of excavation to balance the area of the new bridge columns is large, the entire hillside may need to be cut back to the top of the slope.

Willamette River – There will be three piers in the river. It also may be necessary to install additional structures, such as dolphins, to protect the piers from vessel collisions.

South Bank – There will be a loss of riparian vegetation where the bridge crosses the top of the bank and under the bridge.

Ramp Access Road, Parking Lot, and Butteville Road – Some ground disturbance will be required at the south approach span piers.

South Approach Path – This on-grade segment will have upland vegetation removal and ground disturbance under its footprint.

Temporary Impacts

There will be a local increase in construction traffic, noise, emissions, and dust.

Boones Ferry Park – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

North Bank – Additional riparian vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Willamette River – To access the pier work and place girders, the navigational channel and other portions of the river will need to be partially restricted at times. Some of the additional towers required to safely place the girder segments over the river will have to be located within the limits of the boat dock. Temporary piles and cofferdams will need to be installed and removed.

Ramp Access Road, Parking Lot, and Butteville Road – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

South Approach Path – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Built Environment Impacts

Permanent Impacts

Boones Ferry Park – There will be bridge approaches in the park and a new path accessing Boones Ferry Road. There would be minor revisions required to the Boones Ferry Park Master Plan (MP) that is currently in development.

North Bank – There is no built environment currently present to be impacted.

Willamette River – Remnants of the north bank ferry slip may be impacted due to construction access and placement of the work bridge (if used). There will be a new structure over the Boones Ferry Marina and dock. Pier 3 is located approximately 100 feet from the boat docks, which may impact maneuverability and access to them.

Ramp Access Road, Parking Lot, and Butteville Road – There will be a new structure over the ramp access road, the primary Boones Ferry Boat Launch parking lot, and Butteville Road. One pier column will be required in the parking lot, resulting in the loss of one parking space for a truck with trailer.

South Approach Path – The approach path will partially be constructed on the existing fill for the railroad bridge approach.

Temporary Impacts

Boones Ferry Park – Construction activities will increase traffic on Boones Ferry Road and increase noise levels in the park. Impacts could increase or

decrease, depending on the timing for constructing park improvements identified in the MP.

North Bank – There is no built environment currently present to be impacted.

Willamette River – Placing girders and other work over the boat dock will require temporary closures of portions of the dock. There may be a need to place temporary shoring towers within the limits of the dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be occasional closures of portions of the parking lot and the ramp access road to construct the piers and install the superstructure. There is a possibility that full closures of the parking lot will be necessary for short periods of time. There will be short duration closures and construction traffic on Butteville Road.

Impact Summary

The defining permanent impact of this alternative is the anticipated need to excavate a portion of the north bank to ensure no rise in the water level upstream of the bridge during the 100-year flood.

The primary temporary impacts are related to the use and operation of the river, parking lot, ramp access road, and boat docks due to the necessary shoring towers and girder placement.

Aesthetics

For path users, this alternative would feel very open with no bridge elements extending above the bridge rail. Views upstream and downstream would be unobstructed.

For people viewing the bridge from locations other than the path, this alternative will have a relatively heavy deck appearance, but be visually simple. This alternative does not have trusses, arch ribs, cables, or towers that would increase the visual impact of the structure. The bridge would not stand out against its surroundings, given its relatively simple lines and girder color options, such as weathering steel, that could match the adjacent railroad trusses.

Steel Truss

Steel trusses are formed by arranging steel members to extend the span lengths beyond the range of steel girders. For spans longer than 150 feet, box-shaped trusses are required for stability. The box-shaped trusses can be either below the deck (deck trusses) or the deck can go through the box (through trusses). Deck trusses were not considered for this location due to the required superstructure depth above the navigational channel.

Portland and Western Railroad Bridge, Wilsonville, OR

The proposed steel truss alternative consists of steel through-truss main spans. The through-trusses would be similar to the railroad bridge immediately upstream of the project. The steel could be uncoated weathering steel or painted. The approach spans at both ends would be steel plate girders, as described above for the steel girder alternative, to maintain visual consistency with the railroad bridge. A concrete deck would be placed the full length of the bridge. See Figure 3 for elevation and section views.

A preliminary structure layout was performed. As initially visualized, the structure consists of four frames. The north approach frame is a single 181-foot span of steel plate girders extending from the river bank to the first pier in the river. The steel trusses make up the middle two frames with spans of 315 feet each. The south frame of steel plate girders continues from the trusses, ending south of Butteville Road with spans of 107'-123'-107'.

This alternative is being evaluated as it is capable of achieving the necessary span lengths; can be designed with a shallower deck system compared to the steel plate girder bridge; reduces the height of the path over the navigation channel; uses construction methodologies familiar to local bridge fabricators and contractors; and is similar to the railroad bridge upstream.

Economics

Design & Construction Cost and Duration

The welded steel plate girder approach spans are straight-forward to design and construct. While trusses are familiar to some in the bridge design community, the main truss spans are slightly more complicated to design compared to the steel plate girder option. Construction of the truss spans is slightly more complicated, as well, due to the increased number of member connections. The substructures would likely be single columns on large-diameter drilled shafts. No unique analysis or design tasks are required. The design duration would be approximately one year.

Permitting costs and durations, and potential mitigation are similar to those discussed for the steel girder bridge.

The construction cost of this structure is estimated to be the second least expensive; it is about 10 to 30% more than the steel girder bridge. The construction duration would be approximately two years. Risk of delay due to in-water work is similar to that discussed for the steel girder bridge.

Maintenance

Maintenance of a steel truss pedestrian bridge is similar to maintenance of steel girder highway bridges, which are common in the area. The highest maintenance cost typically associated with steel bridges is related to the coating (paint) systems. The use of weathering steel would minimize or eliminate this consideration. Other common maintenance items are expansion joints and girder bearings.

The routine condition inspection of steel truss approach spans is similar to the regularly scheduled bridge inspections for highway bridges, except at a longer interval between inspections. Truss bridges are typically considered fracture-critical, which require more stringent and time-consuming inspections. There are a number of connections between various steel members, such as the splices and cross frames, that will need to be inspected regularly. Under-bridge inspection trucks or other similar equipment would be required to inspect the superstructure under the deck. Manlifts would be required to access the tops of the trusses and related connections.

The steel truss bridge would require three in-water piers, which increases the risk of debris accumulating on the bridge. It also requires underwater inspections by divers at a minimum of every five years.

Constructability

Access Requirements

There would be piers located in the river on either side of the navigation channel. The drilled shafts for these piers would need to be constructed from a work bridge or barge. With the locks at Willamette Falls currently closed, the practicality of getting a barge of adequate size to the project site needs to be investigated, but it appears that modular systems could be employed.

Access from the north shore to the pier north of the navigation channel would be via a work bridge extending from the ferry access road, approximately 400 feet downstream. Access to a work bridge for the piers in the river between the navigation channel and the south shore would be challenging to locate without impacting the use of a portion of the Boones Ferry Marina dock. This work bridge would start from the boat ramp access road, located west of the dock and east of the railroad bridge. The remaining pier locations on the south bank are all easily accessed.

Installation of the trusses and girders would take some combination of work bridges, barges, and cranes. Shoring towers would be required to temporarily support truss segments if not fully assembled on the ground and lifted or launched into place. The approach girder segments may also require shoring towers. Truss placement over the boat dock is the most challenging location.

There are numerous ways the girders could be placed in this location with varying impacts to the dock, ramp access road, and parking lot. For this analysis, it was assumed that temporary shoring towers could be placed within the limits of the boat dock, resulting in the lowest construction cost. A work containment system and short closure windows would be required to prevent debris from falling on the dock below during a variety of work tasks.

Complexity

This bridge type is seen as relatively straight-forward to build. The trusses and girders are within the capabilities of steel fabricators located in the Portland area. Construction of the piers in the deep portion of the river and installation of the superstructure are the only items not typically accomplished by local contractors. This work also represents an increased risk to the project, because of the extensive in-water work, as previously explained.

Impacts

The various impacts to the project site resources and built environment are summarized below as permanent or temporary. Impacts are discussed according the six areas identified on Figure 1.

Resource Impacts

Permanent Impacts

Boones Ferry Park – There will be a loss of upland vegetation and open space in the undeveloped portion of Boones Ferry Park west of Boones Ferry Road, including in the historic orchard further north

North Bank – There will be a loss of riparian vegetation where the bridge crosses, both at the top of the bank and under the bridge. The three piers within the floodway will require mitigation to avoid raising the flood elevation. Excavating along the north bank is the most likely mitigation. Since this river bank is steep and the required area of excavation to balance the area of the new bridge columns is large, the entire hillside may need to be cut back to the top of the slope.

Willamette River – There will be three piers in the river. It also may be necessary to install additional structures, such as dolphins, to protect the piers from vessel collisions.

South Bank – There will be a loss of riparian vegetation where the bridge crosses the top of the bank and under the bridge.

Ramp Access Road, Parking Lot, and Butteville Road – Some ground disturbance will be required at the south approach span piers.

South Approach Path – This on-grade segment will have upland vegetation removal and ground disturbance under its footprint.

Temporary Impacts

There will be a local increase in construction traffic, noise, emissions, and dust.

Boones Ferry Park – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

North Bank – Additional riparian vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Willamette River – To access the pier work and place girders, the navigational channel and other portions of the river will need to be partially restricted at times. Temporary piles and cofferdams will need to be installed and removed.

Ramp Access Road, Parking Lot, and Butteville Road – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

South Approach Path – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Built Environment Impacts

Permanent Impacts

Boones Ferry Park – There will be bridge approaches in the park and a new path accessing Boones Ferry Road. There would be minor revisions required to the Boones Ferry Park MP that is currently in development.

North Bank – There is no built environment currently present to be impacted.

Willamette River – Remnants of the ferry slip may be impacted due to the placement of the work bridge (if used). There will be a new structure over the Boones Ferry Marina and dock. Pier 3 is located approximately 100 feet from the boat docks, which may impact maneuverability and access to them.

Ramp Access Road, Parking Lot, and Butteville Road – There will be a new structure over the ramp access road, the primary Boones Ferry Boat Launch parking lot, and Butteville Road. One pier column would be required in the parking lot, resulting in the loss of one parking space for a truck with trailer.

South Approach Path – The approach path will partially be constructed on the existing fill for the railroad bridge approach.

Temporary Impacts

Boones Ferry Park – Construction activities will increase traffic on Boones Ferry Road and increase noise levels in the park. Impacts could increase or decrease, depending on the timing for constructing park improvements identified in the MP.

North Bank – There is no built environment currently present to be impacted.

Willamette River – Placing trusses and other work over the boat dock will require temporary closures of portions of the dock. There may be a need to place temporary shoring towers within the limits of the dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be occasional closures of portions of the parking lot and the ramp access road to construct the piers and install the superstructure. There is a possibility that full closures of the parking lot will be necessary for short periods of time. There will be short duration closures and construction traffic on Butteville Rd.

Impact Summary

The defining permanent impact of this alternative is the anticipated need to excavate a portion of the north bank to ensure no rise in the water level upstream of the bridge during the 100-year flood.

The primary temporary impacts are related to the use and operation of the river, parking lot, ramp access road, and boat docks due to the necessary shoring towers and truss and girder placement.

Aesthetics

For path users, this alternative would feel the most enclosed of all options. The through trusses have significant members extending alongside the deck and overhead. Views of the river would be somewhat obstructed by the structure. The use of weathering steel for the above deck truss members may result in patches of rust colored staining on the bridge deck. Alternatively, these members could be painted to minimize staining, but that would increase the maintenance needs.

For people viewing the bridge from locations other than the path, this alternative would blend in with the railroad trusses, as they are approximately the same configuration, height, and possibly color, if weathering steel or matching paint is used.

Tied-Arch

Arches can span significant distances by transferring the vertical deck loads into axial compression in the arch ribs. The form and construction of these structures can be extremely varied. For example, they can be formed out of concrete or steel; apply the thrust in the ribs into the foundations or be tied together on itself like a bowstring; and the ribs can be fully below the deck, fully above the deck, or some combination thereof.

Peter Courtney Minto Island Pedestrian Bridge, Salem, OR

Three Countries Pedestrian Bridge, Germany, Switzerland, France

The proposed tied-arch alternative consists of a single semi-through-tied-arch main span over the river. The term "semi-through" indicates that portions of the arch ribs are located both above and below the deck. Vertical hold-downs would be required at each end of the arch to help resist the lateral loads at the bases of the arch. Portions of the bridge deck below the arch rib would be supported on suspender cables. The remainder of the bridge would be ground-supported. The portion of the arch ribs above the deck could be either concrete or steel. The approach spans at both ends would be concrete slabs to maintain visual consistency. A concrete deck would be placed the full length of the bridge. The suspended portion would use precast panels. See Figure 4 for elevation and section views.

Tempe Town Lake Bridge, Tempe, AZ

A preliminary structure layout was performed. As initially visualized, the proposed structure consists of three frames. The north approach frame is a single 50-foot span of cast-in-place post-tensioned concrete extending from the river bank to the end of the arch system. The arch system has a continuous deck consisting of 552 feet of suspended precast concrete below the arch, sandwiched by twin adjoining cast-in-place post-tensioned concrete spans of 122.5 feet. The precast concrete deck panels are suspended from the arch. The arch itself has a span from support to support of 663 feet with a crown height 80 feet above the deck. The south frame of post-tensioned concrete continues from the end of the arch frame, connecting south of Butteville Road with spans of 108'-125'-108'.

This alternative is being evaluated as it is capable of achieving the necessary span lengths; can be designed with a very shallow deck system over the river, further reducing the height of the path over the navigation channel;

could limit in-water work to the arch foundations on each bank; and is a distinctive signature-type structure.

A river crossing consisting of two tied-arch spans was considered, but not carried forward as it has the same level of complexity as the single-span, includes a pier in the river between the navigational channel and the boat dock, and doesn't fit the site as well as a single-span. A deck arch was also investigated and dismissed due to the required raising of grade to clear the navigational channel and boat dock, the inefficient low rise-to-span ratio, and lack of competent foundation soils to resist the lateral thrust.

Economics

Design & Construction Cost and Duration

The cast-in-place concrete approach spans are straight-forward to design and construct. The main arch span is more complicated due to the height of the structure above the river and its inherent instability prior to being fully connected together. Temporary towers, either in the river and/or on the river banks, would likely be required to support the arch ribs during construction. The arch rib foundations would be large-diameter drilled shafts or driven pile groups. The approach span substructures will most likely be single columns on large-diameter drilled shafts. The vertical hold-downs at the ends of the arch frame would require either rock anchors or large-diameter drilled shafts to resist the expected uplift. The arch span and hold-downs require a level of unique analysis and design to account for construction staging and final structure balancing. The design duration would be approximately two years.

Permitting costs and durations, and potential mitigation are similar to those discussed for the steel girder bridge.

The construction cost of this structure is estimated to be the highest; it is about 90 to 100% more than the steel girder option. The construction duration would be approximately three years. Risk of delay due to in-water work is similar to that discussed for the steel girder bridge.

Maintenance

Maintenance of a tied-arch pedestrian bridge is moderate. The use of weathering steel or concrete for the arch rib to avoid painting, if selected, will minimize maintenance needs. The hanger systems for the suspended portion of the deck require additional inspection effort. Since no piers will be in the river during low-water periods, no underwater diver inspections would be required. Other common maintenance items are expansion joints and girder bearings.

Under-bridge inspection trucks or other similar equipment would be required to inspect the superstructure under the deck. Manlifts would be required to access the tops of the arch ribs and hangers.

Constructability

Access Requirements

The two main arch span piers would be located on either bank of the river. The one on the north bank is at the bottom of the steep hill and not directly accessible from the park above. A temporary work bridge from the end of the ferry slip access road would be required to access this pier. The pier on the south bank would be located between the boat dock and the boat ramp access road, and a short work bridge off the parking lot would be required to access this location. Small cofferdams would probably be required to dewater the base of the arch piers to allow forming and placement of the concrete. Temporary shoring of the boat ramp access road would be required.

Installation of the arch ribs would require some combination of work bridges, barges, and cranes. Shoring towers, either in the river or on the banks with cable supports to the arch, would be required to temporarily support the arch segments. If the arch ribs are steel or precast concrete, access is required to lift the individual pieces into place. The arch rib placement over the boat dock is the most challenging location. A work containment system and/or short closure windows would be required to prevent debris from falling on the dock below during a variety of work tasks. The approach girder segments would require ground-supported falsework, and the vertical clearance over Butteville Road may be temporarily reduced below 17 feet.

The remaining pier and vertical tie-down locations on the north and south banks are all easily accessed.

Complexity

The tied-arch bridge type is seen as very challenging to build in this location and not typically accomplished by local contractors. Based on OBEC's experience with similar structures, the construction sequence of the arch span substructure and superstructure is critical to an efficient, constructible design.

Arch span piers are located on the river bank. This work also represents an increased risk to the project, because of the extensive in-water work, as previously explained. The post-tensioned approach spans are relatively straight-forward, common construction.

Impacts

The various impacts to the project site resources and built environment are summarized below as permanent or temporary. Impacts are discussed according the six areas identified on Figure 1.

Resource Impacts

Permanent Impacts

Boones Ferry Park – There will be a loss of upland vegetation and open space in the undeveloped portion of Boones Ferry Park west of Boones Ferry Road, including in the historic orchard further north.

North Bank – There will be a loss of riparian vegetation where the bridge crosses, both at the top of the bank and under the bridge. The two piers within the floodway will require mitigation to avoid raising the flood elevation. Excavating along the north bank is the most likely mitigation. Since this river bank is steep and the required area of excavation to balance the area of the new bridge columns is large, the entire hillside may need to be cut back to the top of the slope.

Willamette River – Piers will be located at the edge of the ordinary high water line, resulting in a loss of riparian vegetation.

South Bank – There will be a loss of riparian vegetation where the bridge crosses the top of the bank and under the bridge.

Ramp Access Road, Parking Lot, and Butteville Road – Some ground disturbance will be required at the south approach span piers.

South Approach Path – This on-grade segment will have upland vegetation removal and ground disturbance under its footprint.

Temporary Impacts

There will be a local increase in construction traffic, noise, emissions, and dust.

Boones Ferry Park – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

North Bank – Additional riparian vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Willamette River – Construction of the arch ribs will require work bridges and/or barges for access. Installation and removal of the temporary shoring towers (piles if required) will impact the river, as well. The navigational channel and other portions of the river will need to be partially restricted at times due to the shoring towers and during deck panel placement.

Ramp Access Road, Parking Lot, and Butteville Road – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

South Approach Path – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Built Environment Impacts

Permanent Impacts

Boones Ferry Park – There will be bridge approaches in the park and a new path access to Boones Ferry Road. There would be minor revisions required to the Boones Ferry Park MP that is currently in development.

North Bank – There is no built environment present to be impacted.

Willamette River – Remnants of the ferry slip may be impacted due to the placement of the work bridge (if used). There will be a new structure over the Boones Ferry Marina and dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be a new structure over the ramp access road, the primary Boones Ferry Boat Launch parking lot, and Butteville Road. One pier column would be required in the parking lot, resulting in the loss of one parking space for a truck with trailer.

South Approach Path – The approach path will partially be constructed on the existing fill for the railroad bridge approach.

Temporary Impacts

Boones Ferry Park – There will be construction traffic on Boones Ferry Road. Impacts could increase or decrease, depending on the timing for constructing park improvements identified in the Master Plan.

North Bank – There is no built environment present to be impacted.

Willamette River – Placing the arch ribs, deck panels, and other work over the boat dock will require temporary closures of portions of the dock. There may be a need to place temporary shoring towers within the limits of the dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be occasional closures of portions of the parking lot and the ramp access road to construct the piers and install the superstructure. There is a possibility that full closures of the parking lot will be necessary for short periods of time. There will be short duration closures and construction traffic on Butteville Road.

Impact Summary

The defining permanent impact of this alternative is the anticipated need to excavate a portion of the north bank to ensure no rise in the water level upstream of the bridge during the 100-year flood.

The primary temporary impacts are related to the use and operation of the river, parking lot, ramp access road, and boat docks due to the necessary shoring towers and arch rib placement.

Aesthetics

For path users, this alternative would feel somewhat enclosed through the arch with the large arch ribs, cross members, and hangers extending above the deck and overhead. The width of each arch rib is estimated to be 2.5 feet. Compared to the approximate 20-foot width of the superstructure, this could look out of proportion. Weathering steel, if used above the bridge deck, could stain portions of the deck an iron oxide red.

The form of the tied-arch alternative makes this a signature-type bridge. For people viewing the bridge from locations other than the path, this alternative makes a significant visual statement. This alternative would have significant visual mass and uniqueness of form compared to the adjacent bridges.

Cable-Stayed

Cable-stayed bridges are cable-supported structures where the suspenders supporting the deck system are tied back directly to tall pylons. Cable-stayed structures can support very long spans and have very shallow superstructures.

Pedestrian Bridge across the Elbe River, Celakovice, Czech Republic

The proposed cable-stayed alternative consists of a cable-stayed main span over the river supported from two pylons. The form of the pylons is somewhat flexible, depending on the aesthetic appearance desired. The stays supporting the main span are balanced with back-stays at each approach. The north backstays would be tied to an anchor block or ground anchors. The south backstays would support an approach span and be supplemented with vertical hold-downs supported by a drilled shaft or ground anchor. The suspended portion of the bridge deck would be connected to cables. The remainder of the bridge would be ground-supported. The approach spans at both ends would be concrete slabs to maintain visual consistency. A concrete deck would be placed the full length of the bridge. The suspended portion would use precast panels. See Figure 5 for elevation and section views.

I-5: Gateway Pedestrian Bridge, Eugene, OR

A preliminary structure layout was performed. As initially visualized, the proposed structure consists of two frames. The cable-stayed frame consists primarily of precast deck panels with transitional cast-in-place segments and makes up the north 1,069 feet of the structure. The two pylons extend approximately 160 feet above the deck. The south frame, which consists of cast-in-place concrete slab, connects south of Butteville Road with two spans of 71.5 feet.

This alternative is being evaluated as it is capable of achieving the necessary span lengths; can be designed with a very shallow deck system over the river, further reducing the height of the path over the navigation channel; would eliminate in-water work with the pylon foundations on the top of each bank; and is a distinctive signature-type structure.

Cable-stayed structures with either one or three pylons were considered, but not carried forward as they would have the same level of complexity as the two pylon option, include at least one pier in the river between the

navigational channel and the boat dock, and wouldn't fit the site as well as the two pylon structure. They would also require floodway mitigation, which is not necessary for the two pylon layout.

Economics

Design & Construction Cost and Duration

The cast-in-place concrete slab approach spans are straight-forward to design and construct. The main cable-stayed structure is more complicated due to the stay cable assembly and tensioning, and construction sequencing. Temporary towers would likely be required to support the pylons during construction. The pylon foundations would be groups of large-diameter drilled shafts. Since the cable-stayed bridge is anticipated to not have temporary or permanent in-water impacts as noted below, the permitting effort will be minimized. The approach span substructures will most likely be single columns on large-diameter drilled shafts. The cable-stayed portion of the structure requires unique analysis and design to account for construction staging and final structure balancing. The design duration would be approximately two years.

Based upon input from the TAC, the project will potentially qualify for some programmatic permits, largely since there are no in-water piers. The potential for off-site mitigation is also reduced.

The construction cost of this structure is estimated to be second highest; it is about 70 to 90% more than the steel girder bridge. The construction duration would be approximately three years. Due to the limited in-water construction, there is a lower risk of delays compared with some other bridge types.

Maintenance

Maintenance of a cable-stayed pedestrian bridge is moderate. The cables and related connection systems are typically painted or otherwise encapsulated to provide corrosion protection. These protection systems require regular maintenance. The cable-stayed systems require additional inspection effort. Since no piers will be in the river, no underwater diver inspections would be required. Other common maintenance items are expansion joints and girder bearings.

Under-bridge inspection trucks or other similar equipment would be required to inspect the superstructure under the deck. Working the inspection equipment around the stays can be awkward and time-consuming. Accessing the tops of the pylons (160 feet above the deck) and hangers for maintenance and inspection would require special accommodations during design.

Constructability

Access Requirements

The pylons on both banks would be located on the top of the river banks. The one on the north bank is in the currently undeveloped portion of the park and is directly accessible from Boones Ferry Road. The pylon on the south bank would be between the boat ramp access road and the parking lot. Temporary relocation and/or closure of the boat ramp access road would be required to access this location.

Installation of the pylons would require large cranes. Shoring towers would be required to temporarily support the pylons. The approach girder segments would require ground-supported falsework, and the vertical clearance over Butteville Road may be temporarily reduced below 17 feet. The deck panel and hanger placement over the boat dock is the most challenging location. A work containment system would be required to prevent debris from falling on the dock below. Deck panel placement will most likely take place primarily from the pylons outward across the river.

The remaining pier locations on the south banks are all easily accessed.

Complexity

The cable-stayed bridge type is seen as relatively challenging to build and not typically accomplished by local contractors. Based on OBEC's experience with similar structures, the construction sequence of the cable-stayed portion of the substructure and superstructure is critical to an efficient, constructible design, and requires close coordination between the engineers and contractor. The approach spans are relatively straight-forward, common construction.

Impacts

The various impacts to the project site resources and built environment are summarized below as permanent or temporary. Impacts are discussed according the six areas identified on Figure 1.

Resource Impacts

Permanent Impacts

No hydraulic impact is expected for this alternative; therefore, no mitigation will be required.

Boones Ferry Park – There will be a loss of upland vegetation and open space in the undeveloped portion of Boones Ferry Park west of Boones Ferry Road, including in the historic orchard further north. One of the main pylon piers will be located at the edge of the north bank.

North Bank – There will be a loss of riparian vegetation where the bridge crosses, both at the top of the bank and under the bridge.

Willamette River – No permanent impacts are anticipated.

South Bank – There will be a loss of riparian vegetation where the bridge crosses the top of the bank and under the bridge.

Ramp Access Road, Parking Lot, and Butteville Road – Some ground disturbance and riparian and upland vegetation removal will be required at the south pylon footing and approach span piers. The ramp access road may need to be relocated to provide room for the pylon.

South Approach Path – This on-grade segment will have upland vegetation removal and ground disturbance under its footprint.

Temporary Impacts

There will be a local increase in construction traffic, noise, emissions, and dust.

Boones Ferry Park – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

North Bank – No temporary impacts are anticipated on the north bank.

Willamette River – The navigational channel and other portions of the river will need to be partially restricted at times during deck panel placement.

Ramp Access Road, Parking Lot, and Butteville Road – Additional riparian and upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

South Approach Path – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Built Environment Impacts

Permanent Impacts

Boones Ferry Park – There will be bridge approaches and backstay anchors in the park and a new path access to Boones Ferry Road. There would be minor to moderate revisions required to the Boones Ferry Park MP that is currently in development.

North Bank – There is no built environment present to be impacted.

Willamette River – There will be a new structure over the Boones Ferry Marina and dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be a new structure over the primary Boones Ferry Boat Launch parking lot, and Butteville Road. One tie-down column would be required in the parking lot for the configuration shown in Figure 5, resulting in the loss of one parking space for a truck with trailer. Alternatively, a larger tie-down south of Butteville Road and an asymmetrical stay arrangement could be used to eliminate piers in the parking lot.

South Approach Path – The approach path will partially be constructed on the existing fill for the railroad bridge approach.

Temporary Impacts

Boones Ferry Park – There will be construction traffic on Boones Ferry Road. Impacts could increase or decrease, depending on the timing for constructing park improvements identified in the MP.

North Bank – There is no built environment present to be impacted.

Willamette River – Placing the deck panels and other work over the boat dock will require temporary closures of portions of the dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be occasional closures of portions of the parking lot and the ramp access road to construct the piers and install the superstructure. There is a possibility that full closures of the parking lot and/or ramp road will be necessary for short periods of time. The ramp road would likely need to be temporarily realigned to construct the Pier 3 pylon and foundation. There will be short duration closures and construction traffic on Butteville Road.

Impact Summary

The defining permanent impact of this alternative is the anticipated need to relocate a portion of the ramp access road to provide room for the south pylon between the ramp and the parking lot.

The primary temporary impacts are related to the use and operation of the parking lot and ramp access road.

Aesthetics

For path users, this alternative would feel open, with only the pylons and hangers extending above the deck and overhead. The pylons would extend approximately 180 feet above the bridge deck. With a superstructure width of only 20 feet, the towers may appear out of proportion to the pylons. The form of the cable-stayed alternative makes this a signature-type bridge. For people viewing the bridge from locations other than the path, this alternative would not particularly stand out from its surroundings due to the minimal mass of the suspended deck system and stay systems and the location of the pylons on the river banks in line with the riparian vegetation.

Suspension

Suspension bridges are cable-supported structures where the suspenders supporting the deck system are tied to the primary suspension cables spanning between pylons. The pylons for a suspension bridge are approximately one-half as tall as those for a cable-stayed bridge with a similar span. Suspension bridges support the longest spans in the world and can have very shallow superstructures.

Fort Edmonton Park Pedestrian Bridge, Edmonton, AB, Canada

Defazio Bridge, Eugene, OR

For the proposed suspension alternative, the form of the pylons is somewhat flexible, depending on the aesthetic appearance desired. The back spans of the main suspension cables would support some of the approaches and be tied to anchor blocks with ground anchors. The suspended portion of the bridge deck would be connected to hanger cables. The remainder of the bridge would be ground-supported. The approach spans at both ends would be concrete slabs to maintain visual consistency. A concrete deck would be placed the full length of the bridge. The suspended portion would use precast panels. See Figure 6 for elevation and section views.

A preliminary structure layout was performed. As initially visualized, the proposed structure consists of two frames. The suspension frame consists primarily of precast deck panels with transitional cast-in-place segments and makes up the north 1,088 feet of the bridge. The two pylons extend approximately 80 feet above the deck. The south frame of cast-in-place concrete slab connects south of Butteville Road with two spans of 71.5 feet.

This alternative is being evaluated as it is capable of achieving the necessary span lengths; can be designed with a very shallow deck system over the river, further reducing the height of the path over the navigation channel; would eliminate in-water work with the pylon foundations on the top of each bank; and is a distinctive signature-type structure.

Economics

Design & Construction Cost and Duration

The cast-in-place concrete slab approach spans are straight-forward to design and construct. The main suspension structure is more complicated due to the suspender cable connections and erection of the suspended spans without falsework. Temporary towers would likely be required to support the pylons during construction. The pylon foundations would be groups of large-diameter drilled shafts. At the ends of the suspension bridge cables,

anchorages are required to resist the horizontal forces of the structure. These anchorages are likely to be constructed from drilled shafts with large concrete caps. Since the suspension bridge will not have permanent in-water impacts as noted below, the permitting effort will be minimized. The approach span substructures will be single columns on large-diameter drilled shafts. The suspended portion of the structure requires unique analysis and design to account for construction staging. The design duration would be approximately two years.

Permitting costs and durations, and potential mitigation are similar to those discussed for the cable-stayed bridge.

The estimated construction cost of this structure is estimated to be second highest; it is about 70 to 90% more than the steel girder bridge.. The construction duration would be approximately three years. Risk of delay due to in-water work is similar to that discussed for the cable-stayed bridge.

Maintenance

Maintenance of a suspension pedestrian bridge is moderate. The cables and related connection systems typically are painted or otherwise encapsulated to provide corrosion protection. These protection systems require regular maintenance. The suspension system requires additional inspection effort. Since no piers will be in the river, no underwater diver inspections would be required. Other common maintenance items are expansion joints and girder bearings.

Under-bridge inspection trucks or other similar equipment would be required to inspect the superstructure under the deck. Working the inspection equipment around the hangers can be awkward and time-consuming. Accessing the tops of the pylons (80 feet above the deck) and hangers for maintenance and inspection would require special accommodations during design.

Constructability

Access Requirements

The pylons on both banks would be located on the top of the river banks. The one on the north bank is in the currently undeveloped portion of the park and is directly accessible from Boones Ferry Road. The one on the south bank would be between the boat ramp access road and the parking lot. Temporary relocation and/or closure of the boat ramp access road would be required.

Installation of the pylons would require large cranes. Shoring towers would be required to temporarily support the pylons. The approach girder segments would require ground-supported falsework, and the vertical clearance over Butteville Road may be temporarily reduced below 17 feet. The deck panel and hanger placement over the boat dock is the most challenging location. A work containment system would be required to prevent debris from falling on

the dock below. Deck panel placement for the main span will probably take place primarily from the middle of the river outward towards the pylons.

The remaining pier locations on the south banks are all easily accessed.

Complexity

The suspension bridge type is seen as relatively challenging to build and not typically accomplished by local contractors. Based on OBEC's experience with similar structures, the construction sequence of the suspended portion of the substructure and superstructure is simpler than the cable-stayed bridge, but still requires specialty equipment. The approach spans are relatively straight-forward, common construction.

Impacts

The various impacts to the project site resources and built environment are summarized below as permanent or temporary. Impacts are discussed according the six areas identified on Figure 1.

Resource Impacts

Permanent Impacts

No hydraulic impact is expected for this alternative; therefore, no mitigation will be required.

Boones Ferry Park – There will be a loss of upland vegetation and open space in the undeveloped portion of Boones Ferry Park west of Boones Ferry Road and in the historic orchard further north. One of the main pylon piers will be located at the edge of the north bank.

North Bank – There will be a loss of riparian vegetation where the bridge crosses, both at the top of the bank and under the bridge.

Willamette River – No permanent impacts are anticipated.

South Bank – There will be a loss of riparian vegetation where the bridge crosses the top of the bank and under the bridge.

Ramp Access Road, Parking Lot, and Butteville Road – Some ground disturbance and riparian and upland vegetation removal will be required at the south pylon footing and approach span piers. The ramp access road may need to be relocated to provide room for the pylon.

South Approach Path – This on-grade segment will have upland vegetation removal and ground disturbance under its footprint.

Temporary Impacts

There will be a local increase in construction traffic, noise, emissions, and dust.

Boones Ferry Park – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

North Bank – No temporary impacts are anticipated on the north bank.

Willamette River – The navigational channel and other portions of the river will need to be partially restricted at times during deck panel placement.

Ramp Access Road, Parking Lot, and Butteville Road – Additional riparian and upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

South Approach Path – Additional upland vegetation loss and ground disturbance over that included in the permanent impacts above will be necessary to access the work.

Built Environment Impacts

Permanent Impacts

Boones Ferry Park – There will be bridge approaches and main suspension cable anchors in the park and a new path access to Boones Ferry Road. There would be minor to moderate revisions required to the Boones Ferry Park MP that is currently in development.

North Bank – There is no built environment present to be impacted.

Willamette River – There will be a new structure over the Boones Ferry Marina and dock.

Ramp Access Road, Parking Lot, and Butteville Road – There will be a new structure over the primary Boones Ferry Boat Launch parking lot, and Butteville Road.

South Approach Path – The approach path will partially be constructed on the existing fill for the railroad bridge approach.

Temporary Impacts

Boones Ferry Park – There will be construction traffic on Boones Ferry Road. Impacts could increase or decrease, depending on the timing for constructing park improvements identified in the MP.

North Bank – There is no built environment present to be impacted.

Willamette River – Placing the deck panels and other work over the boat dock will require temporary closures of portions of the dock. Deck panel installation may also require use of barges.

Ramp Access Road, Parking Lot, and Butteville Road – There will be occasional closures of portions of the parking lot and the ramp access road to construct the piers and install the superstructure. There is a possibility that full closures of the parking lot and/or ramp road will be necessary for short periods of time. The ramp road would likely need to be temporarily realigned to construct the Pier 3 pylon and foundation. There will be short duration closures and construction traffic on Butteville Road.

Impact Summary

The defining permanent impact of this alternative is the anticipated need to relocate a portion of the ramp access road to provide room for the south pylon between the ramp and the parking lot.

The primary temporary impacts are related to the use and operation of the parking lot and ramp access road.

Aesthetics

For path users, this alternative would feel open with only the pylons, main suspension cable, and hangers extending above the deck and overhead. The form of the suspension alternative makes this a signature-type bridge. For people viewing the bridge from locations other than the path, this alternative would not particularly stand out from its surroundings due to the minimal mass of the suspended deck system and hanger systems and the location of the pylons on the river banks in line with the riparian vegetation.

Bridge Types Considered Infeasible

Concrete Girders

Concrete girders could be either precast, cast-in-place, or a combination of both. The maximum span length for precast I- or T-girders is limited to just over 200 feet. Precast segmental girders consist of discrete box-shaped sections tied together and can span significantly further than the I- or T-girders. However segmental girders require a complicated placement apparatus. The concrete girder options were not selected for further analysis for a number of reasons:

Owosso Pedestrian Bridge, Eugene, OR

- Precast concrete I- or T-girders have maximum spans of approximately 200 feet, which is not adequate to clear span the Willamette's approximately 240-foot-wide navigational channel and meet USCG requirements.
- Segmental post-tensioned concrete bridges can achieve the required spans, but are only economical when the bridge is long enough overall to realize savings due to repetition of superstructure segments.
- Traditional cast-in-place concrete, typically box, beams require significant falsework and associated access to construct. The height of the falsework would be more than 100 feet over the bottom of the river and could significantly restrict the navigational channel during a multi-year construction period.
- In all cases, the concrete girders would be deep, at five percent of the span, for the span lengths considered. This would require raising the path to clear the navigational channel and extending the approaches at each end.

Stress Ribbon

Stress ribbon bridges are tension structures with suspension cables embedded in the deck that follow a catenary curve between supports. The main spans sag between supports, much like power lines between poles. Stress ribbon options were not selected for further analysis for a number of reasons:

Rogue River Pedestrian Bridge, Grants Pass, OR

- To meet the ADA requirement to limit slopes along the path to five percent maximum and to meet USGS vertical clearance requirements, the tension in the supporting cables would have to be excessively high.

- The low point of the structure is also at mid-span due to the catenary curve, which would require raising the grade much like the concrete girders above.

Summary

In this report OBEC has: identified the possible bridge types for a crossing of the Willamette River along the identified alignment; identified the five types that best meet the needs of the project and site; developed preliminary layouts for the five types; broadly examined and evaluated the bridge types against the four criteria (economics, constructability, impacts, and aesthetics); and completed a comparison of bridge types.

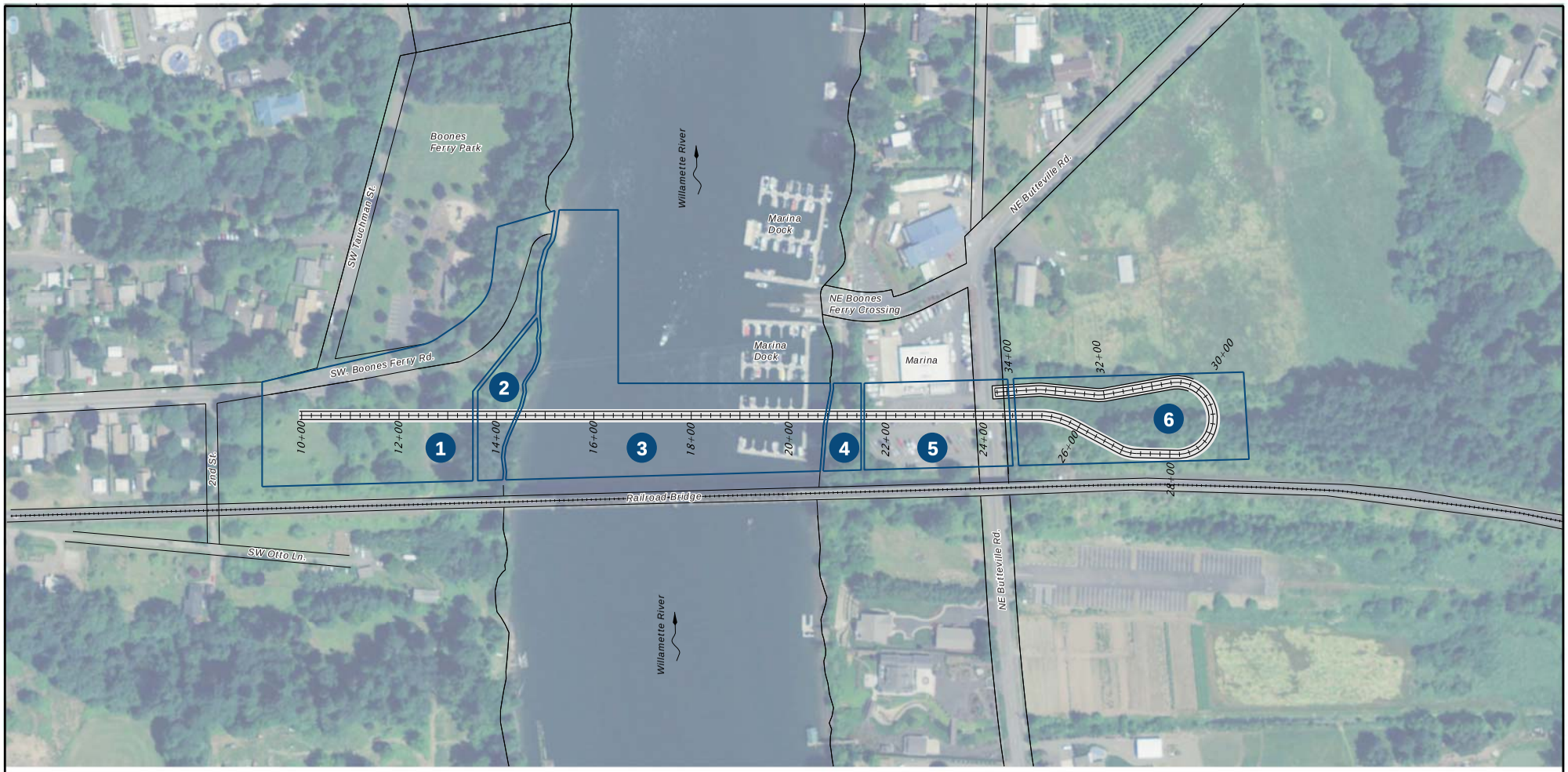
On October 3, 2018, the project team met with the TAC to review the draft report and bridge type evaluation process and outcome. TAC input has been incorporated into this report. Recognizing that obtaining funding for the project may prove challenging, their recommendation is to advance one bridge type that is lower cost and conventional, and one that is a signature type and also avoids locating a pier in the marina parking lot.

The project team's evaluation and the TAC's input to this report are presented in Appendix A – Bridge Type Assessment Summary. This appendix provides a concise comparison of the bridge types in three areas: cost and complexity, temporary impacts, and permanent impacts.

Once the public has provided input and the project team meets with the Task Force, the BCC and the Wilsonville City Council will select two bridge types for further investigation. Three-dimensional renderings will be prepared for those two bridge types.

Following the additional investigation, the BCC and City Council will select the preferred bridge type.

FIGURES



Project Areas of Assessing Impacts

1. Boones Ferry Park
2. North Bank
3. Willamette River
4. South Bank
5. Ramp Access Rd., Parking Lot, Butteville Rd.
6. South Approach Area

FRENCH PRAIRIE BRIDGE PROJECT IN WILSONVILLE

WILSONVILLE OREGON

SCALE WARNING

If scale bar doesn't measure one inch then drawing is not to scale

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DATE	Sept. 2018

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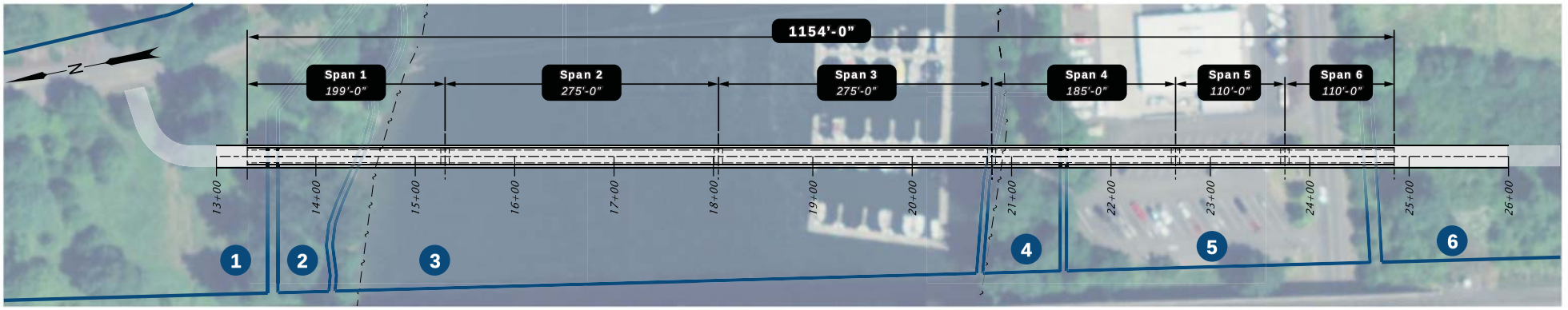
BOONES FERRY ROAD
MARION AND CLACKAMAS COUNTY

Designer: Eric E. Bonn, P.E. Reviewer: Bob Goodrich, P.E.
Drafter: OBEC CAD Checker: Andy Howe, P.E.

ALIGNMENT

SHEET NO. FIG. 1



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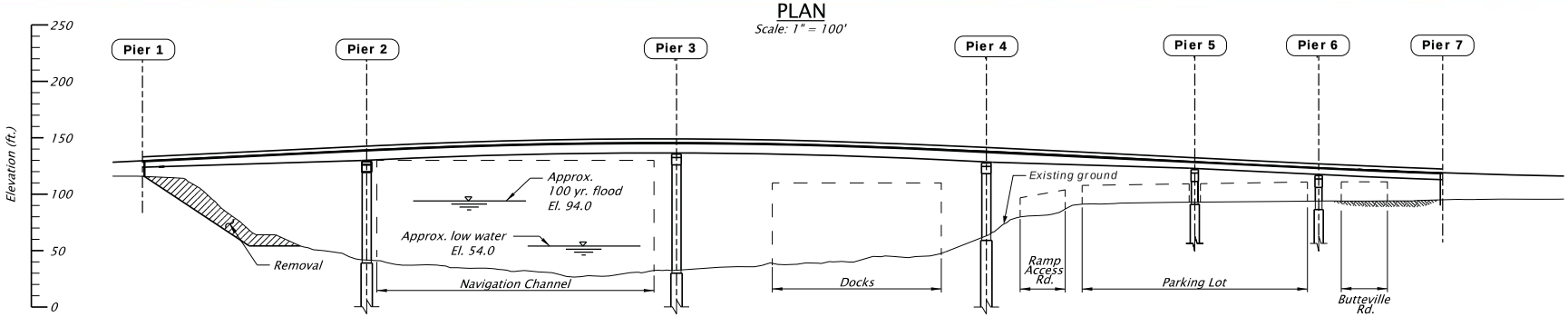

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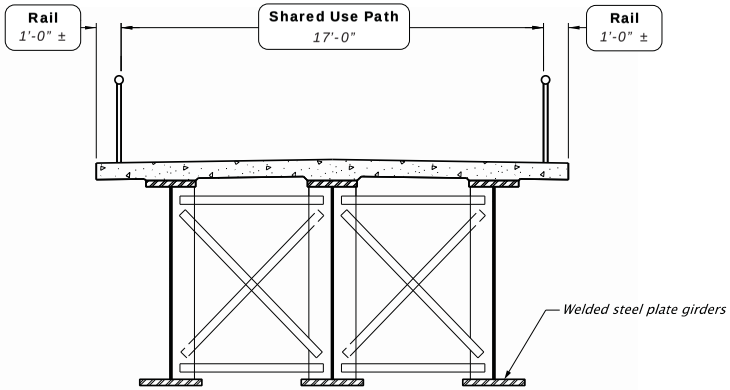

TYPICAL SECTION
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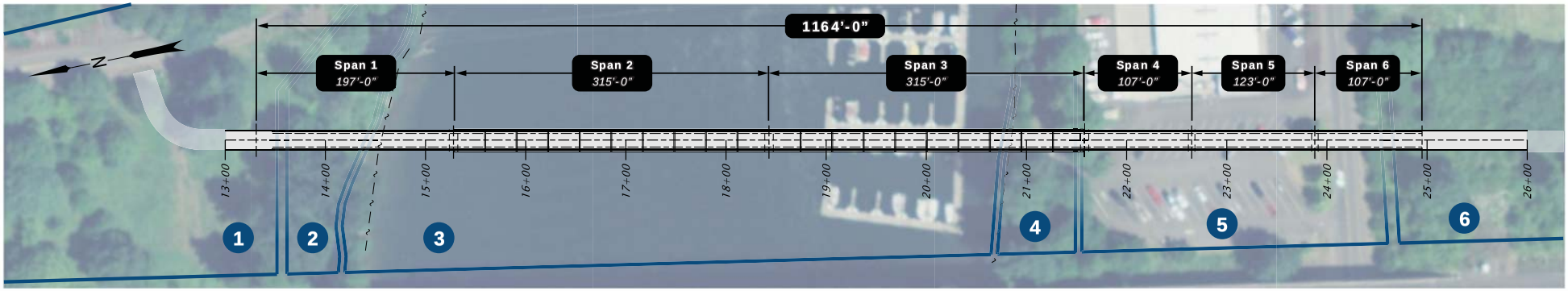
STEEL GIRDER

SHEET NO. FIG. 2



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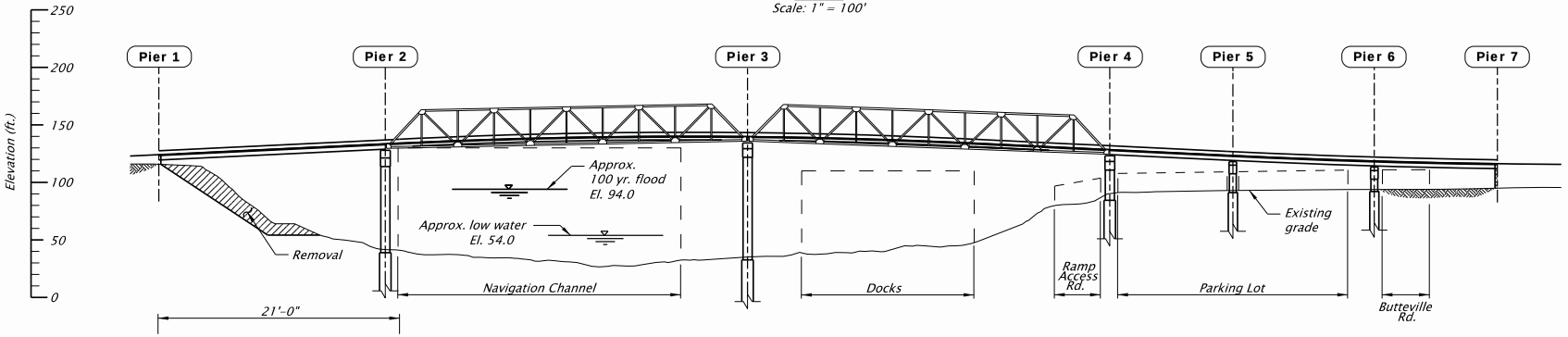

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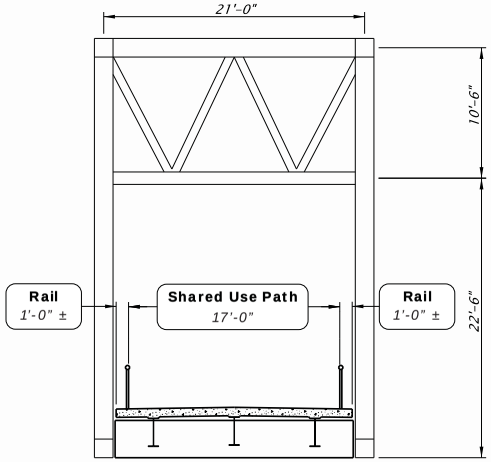

TYPICAL SECTION
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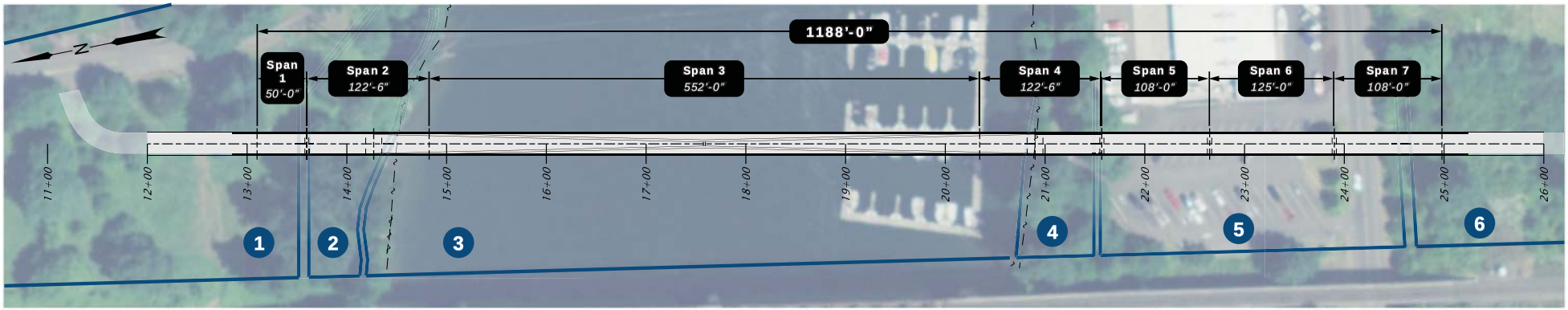
STEEL TRUSS

SHEET NO. FIG. 3



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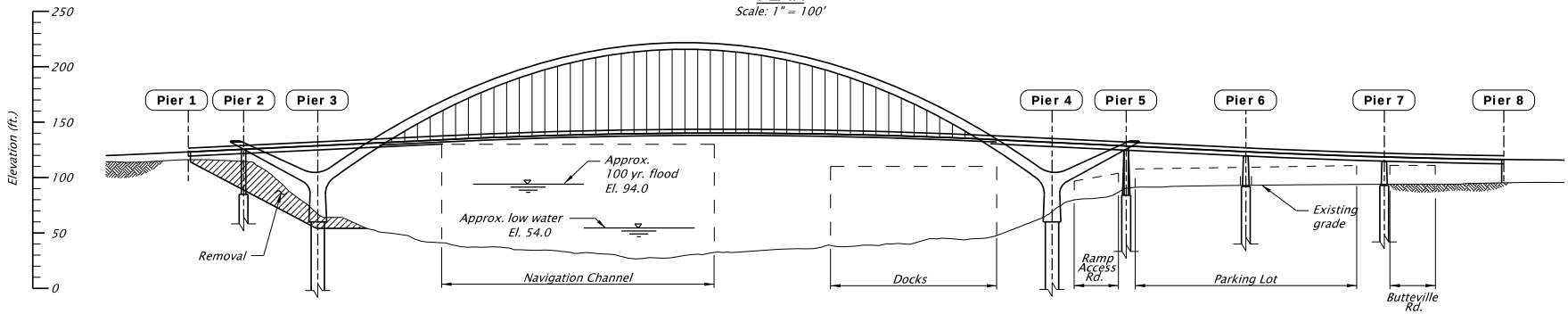

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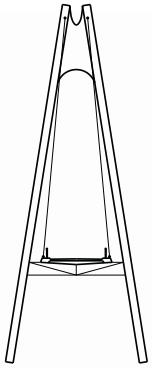

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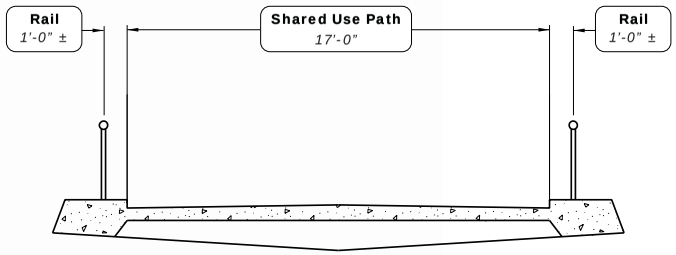

DECK SECTION
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SCALE WARNING
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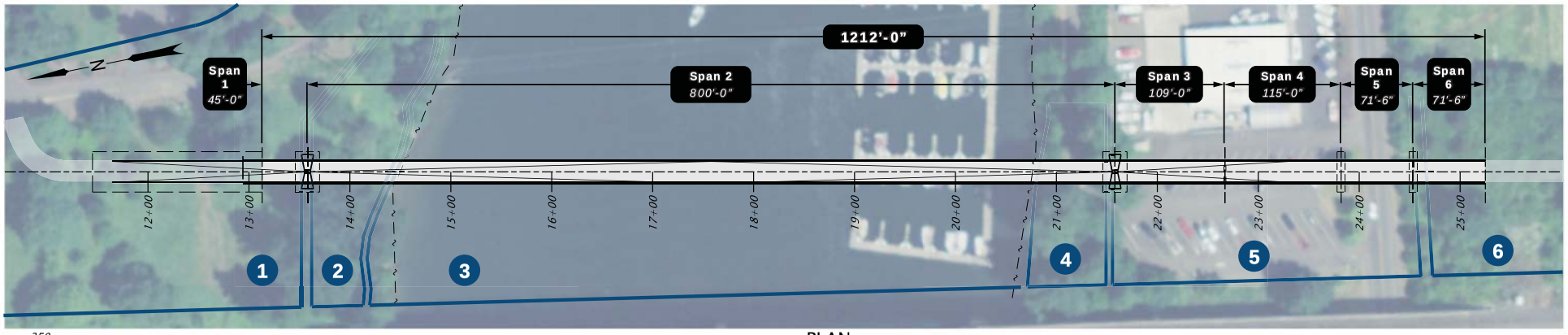
SINGLE ARCH — SHEET NO. FIG. 4



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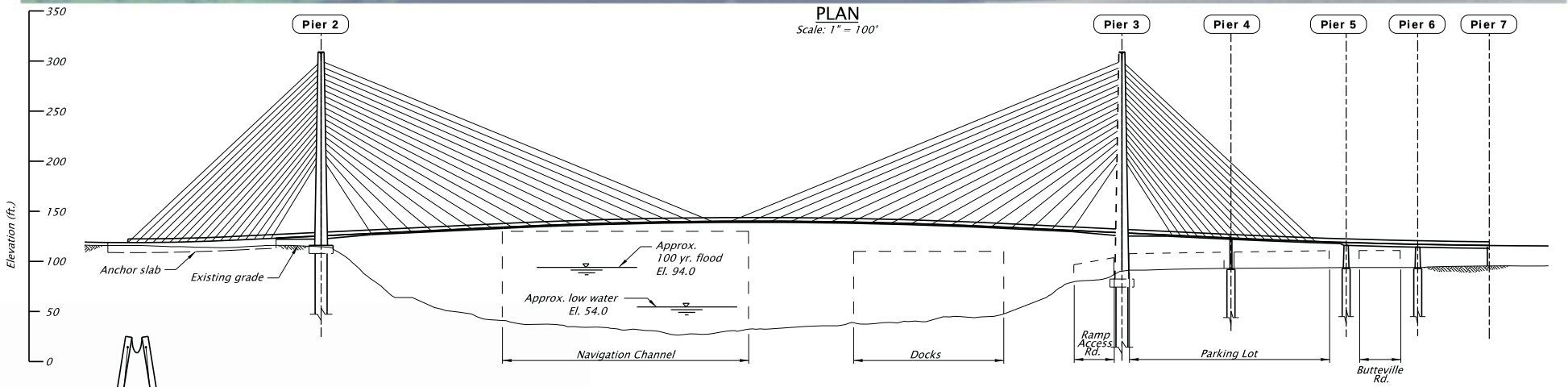

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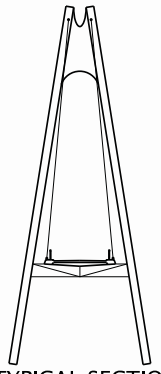

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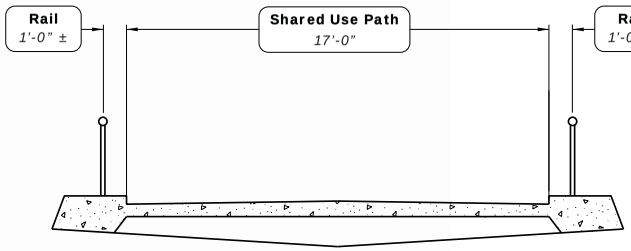

DECK SECTION
Scale: 1" = 5'

FRENCH PRAIRIE BRIDGE PROJECT

WILSONVILLE OREGON

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M.P.:	
COUNTY	Clackamas
DATE	Sept. 2018

CONCEPT PLANS NOT FOR CONSTRUCTION

CORPORATE OFFICE:
920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-6089
REGIONAL OFFICES:
LAKE OSWEGO, SALEM, MEDFORD, OREGON; VANCOUVER, WASHINGTON
CONSULTING ENGINEERS
www.obec.com

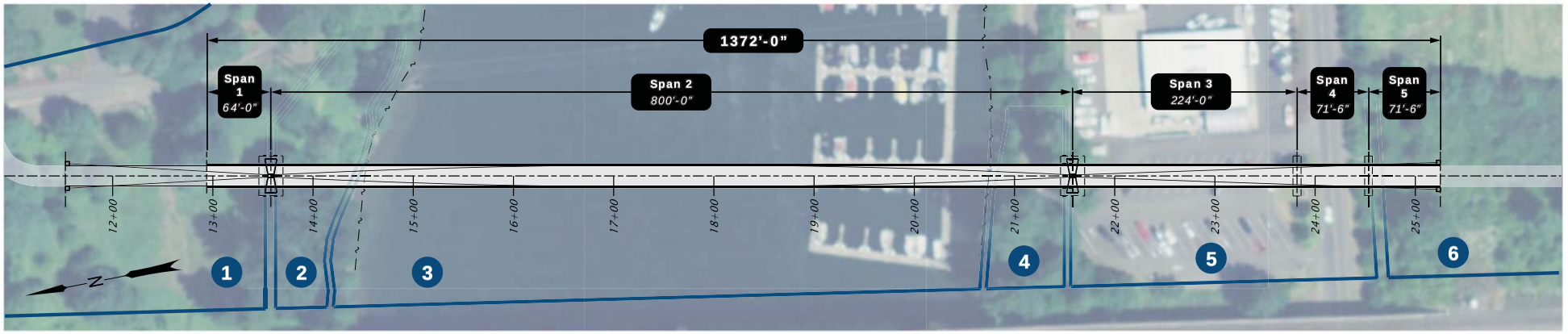
FRENCH PRAIRIE BRIDGE PROJECT

BOONES FERRY ROAD
MARION AND CLACKAMAS COUNTY

Designer: Eric E. Bonn, P.E. Reviewer: Bob Goodrich, P.E.
Drafter: OBEC CAD Checker: Andy Howe, P.E.

CABLE STAYED

SHEET NO. FIG. 5



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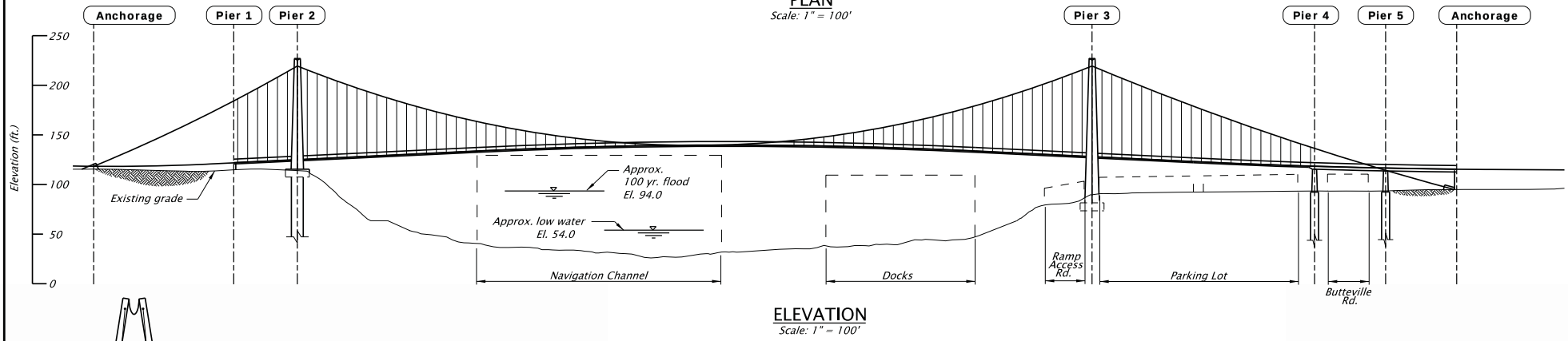

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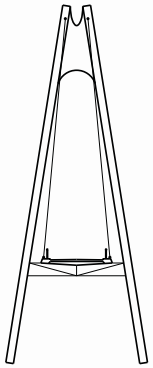

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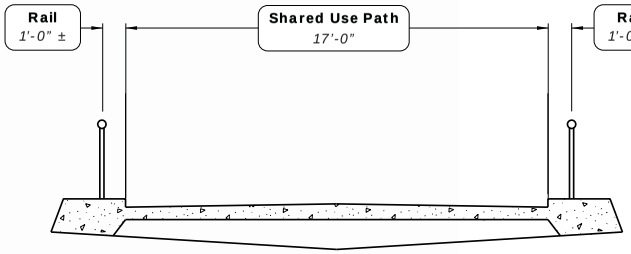

DECK SECTION
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SCALE WARNING
If scale bar doesn't measure one Inch then drawing is not to scale

STRUCTURE NO.	—
BDS DWG NO.	0000x
CALC. BOOK	—
HWY:	
M.P.:	
COUNTY	Clackamas
DATE	Sept. 2018

CONCEPT PLANS NOT FOR CONSTRUCTION

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SUSPENSION

SHEET NO. FIG. 6

APPENDIX A
Bridge Type Assessment Summary

French Prairie Bridge Project

Bridge Type Assessment
October 2018

The table summarizes how well the bridge type meets project evaluation criteria and compares against other bridge types. Filled circles indicate best suitability and least adverse impact while empty circles indicate least suitability and most adverse impact.

	Steel Girder		Steel Truss		Tied-Arch		Cable-Stayed		Suspension	
Cost & Complexity	Least cost	●	Cost is ~15-30% greater than steel girder	●	Cost is ~90-100% greater than steel girder	○	Cost is ~70-90% greater than steel girder	◘	Cost is ~70-90% greater than steel girder	◘
	~2 year construction duration	●	~2 year construction duration	●	~3+ year construction duration	○	~3 year construction duration	○	~3 year construction duration	○
	Longest permitting duration	○	Longest permitting duration	○	Long permitting duration	○	Shortest permitting duration	●	Shortest permitting duration	●
	Most risk to cost and schedule for in-water work	○	Most risk to cost and schedule for in-water work	○	Most risk to cost and schedule for in-water work	○	Least risk to cost and schedule for in-water work	●	Least risk to cost and schedule for in-water work	●
	Constructable by local contractors	●	Requires some specialty fabrication	◘	Requires specialty contractors	○	Requires specialty contractors	○	Requires specialty contractors	○
Temporary Impacts	Foundation construction in the river channel	○	Foundation construction in the river channel	○	Foundation construction in the river channel	○	No foundation construction in the river	●	No foundation construction in the river	●
	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	Temporary bridge supports in the river, reducing navigational channel and impacting marina	○	No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●	No temporary bridge supports in the river, sporadic impacts to navigational channel and marina	●
	Access and staging on both sides of the river, causing moderate impacts to Boones Ferry Park and high impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park and high impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing minor impacts to Boones Ferry Park, high impacts to dock area and moderate impacts to marina parking	●	Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◘	Access and staging on both sides of the river, causing the highest impacts to Boones Ferry Park, and moderate impacts to dock area and marina parking	◘
Permanent Impacts	Three piers in river channel	○	Two piers in river channel	○	Two piers on river banks	◘	No piers in river	●	No piers in the river	●
	One pier in marina parking lot	○	One pier in marina parking lot	○	One pier in marina parking lot	○	Potentially one pier in marina parking lot	◘	No pier in marina parking lot	●
	Grading in Boones Ferry Park for higher bridge deck/deeper girders	◘	Minor grading in Boones Ferry Park	●	Minor grading in Boones Ferry Park	●	Anchorage for stay cable in the north end of Boones Ferry Park	○	Anchorage for suspension cable in the north end of Boones Ferry Park	○
	Potential dock area impacts due to proximity of new pier	○	Potential dock area impacts due to proximity of new pier	○	No dock area impact	●	No dock area impact, but boat launch road must be realigned	◘	No dock area impact, but boat launch road must be realigned	◘
	Regrade river banks to mitigate floodway impacts	○	Regrade river banks to mitigate floodway impacts	○	Regrade river banks to mitigate floodway impacts	○	No floodway impacts	●	No floodway impacts	●

French Prairie Bridge Project Technical Advisory Committee Meeting #4

Meeting Summary
Wednesday, October 3, 2018
1:00– 3:00 PM

Wilsonville City Hall
29799 SW Town Center Loop E, Wilsonville,
OR Willamette River Rooms I & II

Members Present
Chris Neamtzu, City of Wilsonville Planning; Kerry Rappold, City of Wilsonville Natural Resources; Tod Blankenship, City of Wilsonville Parks and Recreation; Rick Gruen and Tom Riggs, Clackamas County Parks; Anthony Buczek, Metro; Tom Loynes, National Marine Fisheries Service; Tom McConnell, Oregon Department of Transportation; Russ Klassen (for Dan Cary) Oregon Department of State Lands; Natalie Edwards (replaces Carrie Bond), U.S. Army Corps of Engineers

Members Unable to Attend
Nancy Bush, Clackamas County Disaster Management; Scott Hoelscher, Clackamas County Planning; Terry Learfield, Clackamas County Bridge Maintenance; Tom Murtaugh, Oregon Department of Fish and Wildlife; Dan Cary, Oregon Department of State Lands; Robert Tovar, Oregon Department of Transportation; Andrew Phelps, Oregon Office of Emergency Management

Project Management Team/ Staff
Karen Buehrig, Clackamas County; Bob Goodrich, OBEC Consulting Engineers; Zach Weigel, City of Wilsonville; Anne Pressentin, EnviroIssues; August Burns, EnviroIssues

Conversation is summarized by agenda item below.

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1. Welcome and Introductions **1:00 – 1:20pm**

City of Wilsonville French Prairie Bridge Project Manager Zach Weigel welcomed Technical Advisory Committee (TAC) members and thanked them for staying with this important project into the next phase of bridge type selection. Acknowledging that Kirstin Greene, former facilitator from EnviroIssues, had moved on to a public-sector position, Zach introduced Anne Pressentin of EnviroIssues as the new project facilitator. Facilitator Anne Pressentin asked members to introduce themselves and then went through the meeting agenda.

2. Project Updates **1:20 – 1:40pm**

Recognizing that it has been many months since the last TAC meeting, Zach gave a brief overview of key decisions that have been made since the last TAC meeting as well as a project schedule update. Key decisions include the unanimous decision of Wilsonville City Council and the Clackamas County Board of Commissioners passing a resolution in favor of alignment W1, which the TAC and Task Force recommended. The next step is to evaluate five potential bridge types.

Based on discussions with the Federal Highway Administration, the project team will complete a

planning summary document that comprehensively details the analysis and process to date. FHWA will review the document to determine what other environmental reviews/assessments are needed for the project to proceed.

The Task Force will meet in December to review the five bridge types and recommend two preferred bridge types for further evaluation based on TAC and public input. Those two bridge types will go to City Council and Clackamas County Board of Commissioners for approval to proceed with the additional analysis. Zach presented an update project schedule.

Additionally, there is a project online open house that will be live from October 11, 2018 – October 30, 2018, and an in-person open house slated for October 18th.

3. Bridge Type Selection Process **1:40– 1:55pm**

Bob Goodrich explained the selection process and logic behind settling on the five bridge types identified for evaluation. He noted a couple of structure types specifically not evaluated: a stress ribbon bridge would have difficulty meeting ADA requirements because of the steep grades near bridge supports; concrete girders cannot feasibly achieve the necessary span lengths to meet the navigational clearance without incurring additional costs and impacts. The five bridge types being evaluated are: steel girders, steel trusses, tied arch, cable-stayed, and suspension.

The project team developed the following selection criteria when evaluating the bridge types:

- Economics
    - Design and Construction Cost
    - Design and Construction Duration
    - Maintenance
- Constructability,
    - Substructure Access Requirements
    - Substructure Complexity
    - Superstructure Access Requirements
    - Superstructure Complexity
- Impacts
    - Temporary Resource Impacts
    - Temporary Built environment Impact
    - Permanent Resource Impacts
    - Permanent Built environment Impact
- Aesthetics

A TAC member asked whether temporary and permanent impacts were weighted the same. Bob Goodrich said when different weights were applied the outcome did not change significantly. The TAC noted the subjectivity of impacts as a challenge in considering weighting, but did not want to mask the permanent impact if there was a high weight on temporary impacts.

The TAC recommended removing aesthetics from the scoring criteria due to the inherent subjectivity.

Clarification was given that the smaller scoring numbers are meant to denote better bridge type outcomes for the individual criteria. Clarification was also given that this ranking system is relative to the other bridge types, and are meant to help the TAC, Task Force, and Public get a sense of the bridges compared to one another. It is a process developed to facilitate discussion and inform

decision-making, not to provide "the answer".

Questions arose around real numbers for bridge cost estimates, something that will dictate whether building a bridge is feasible. The project team pointed out that it is too early in the project to give hard numbers for bridge costs because there are too many factors that will arise in later stages to be able to give accurate estimates at this point. However, relative cost was a scoring criterion.

Bob Goodrich then walked the TAC through each of the five bridge types and how the scoring criteria was applied to each.

Some aspects of all bridge types that were taken into consideration included:

- Creating a navigational channel in line with up and downstream bridges
- Providing vertical clearance over the river no less than the up and downstream bridges
- Minimum span length similar to the navigational channel
- Adverse natural resource impacts that are potentially avoidable with other bridge types
- Ability to avoid permanent impacts is dictated by bridge type and span length

Steel Girder

The TAC asked whether the bridge type would determine how far or close the structure could be built to the existing railroad bridge. The project team clarified that the alignment dictated the distance between the potential structure and current railroad bridge. The alignment placement took into consideration the railroad bridge's potential failure in the event of an earthquake. Each bridge type has the same horizontal alignment, but vertical alignment shifts depending on the total depth of the bridge structure spanning the river.

A concern was raised about the stormwater outfall from Boones Ferry road and how the environmental impacts of a cut bank from this bridge type might be problematic due to erodible soils. The project team recognizes that environmental impact of this bridge type, given the pier locations and the need to balance flooding potential with soil types. Steel girder bridges have the deepest structure from the bridge deck to the bottom of the girders. It was also noted by the project team that no bridge will be inexpensive or low impact.

There was discussion about the impacts to the marina's parking lot. This bridge has a potential to impact parking for up to two years of construction and the potential to remove a parking spot for the bridge's foundation. Consideration is needed long term for a new parking lot to serve the trailhead to alleviate stress on marina parking space, one member said. A new lot was not considered in this study since it does not affect bridge type selection.

While the cost is relatively low for this bridge, there are temporary and permanent impacts associated with it, including permanent piers in the river and one in the marina parking lot.

Steel Truss

The profile of a steel truss can be closer to the water than a steel girder bridge and still meet the navigational requirements, which makes the bridge a little shorter overall and may save on some of the approach construction costs. Costs are similar to the steel girder. The TAC wondered if the shorter approach affected the dimension of the piers, but it does not affect it dramatically. Permanent impacts are also similar.

A TAC member said that Oregon has several steel truss bridges and that a common expenditure in

maintenance is painting, and that Wilsonville will need to consider that expense as they will be the ones fronting the bill. The project team explained that a way around that expense is to construct either the steel girder or steel truss bridge with weathered steel, which is inherently corrosion resistant. This would eliminate painting as a maintenance concern. The project team also said that should either a truss or girder bridge move forward, the agency responsible for long-term maintenance will need to weigh in.

Tied Arch

The tied arch bridge type still requires a pier in the marina parking lot, but the river piers are removed from the main river and are located on the edge of the channel. The structure depth is shallow, and the profile is low. However, this is a much higher cost bridge type and requires specialty construction.

The TAC brought up a concern about excavating the edge of the river versus building a retaining wall, a consideration the project team went back and forth on in terms of showing on the bridge figure. Ultimately, the project team decided to show the bank cut back. It was noted that land could be better utilized with the construction of a retaining wall, but at a higher project cost.

The TAC asked about why the tied arch bridge was ranked lower in aesthetics than the steel girder and steel truss bridge types. The project team recognized the subjective nature of the ranking but felt it was justified given the height (tall) and width (narrow) of the bridge would be disproportionate to the two existing bridges in the project area.

There was also concern as to whether emergency vehicles would be able to fit through the narrow archway of this bridge type. The project team assured the TAC that emergency vehicle clearance would be accommodated in bridge design.

Cable Stayed

This bridge type has no piers in the river, which will reduce or eliminate permanent impacts in the river. The bridge figure shows a pier in the parking lot, but the project team says it is possible to remove that pier during preliminary design. This bridge type has the potential for further modifications to reduce temporary and permanent impacts to the marina and river, however, it is a relatively high cost bridge type that requires specialty construction.

The TAC requested that the project team list out local examples of all the bridge types.

The TAC was also curious if the Aurora Airport had been coordinated with and was concerned with the height of the piers affecting flight path. The project team assured the TAC that the design would be coordinated appropriately and that the piers would not intrude in flight path.

Suspension bridge

This bridge type has many similarities to cable stayed. The piers and pylons are shorter and it has a main suspender cable. Potential temporary impacts include the need to construction a large buried anchorage block in Boones Ferry Park. Most construction of the suspension bridge is at deck level and won't create temporary or permanent river impacts, making this one of the lowest impact bridges compared to the other options. This is a high cost bridge type requiring specialty construction.

Additional comments and questions:

- What is difference in the height between suspension and cable-stay?
- Better explain rationale for different ranks. If ranks are different, the text in the table should be different.
- Have you talked with the tribal nations?

4. Ranking of Bridge Types **1:55 – 2:50pm**

Cost

In terms of expense, steel girders are the least expensive with steel trusses not far behind, cable stayed and suspension bridges are close in cost, and the tied arch is the most expensive.

TAC asked why the suspension bridge was ranked as being less expensive to maintain than a cable stayed bridge and the project team felt that the greater number of individual cables compared to one main cable for the suspension bridge to maintain warranted a higher score.

TAC was concerned about the lack of mention regarding permitting process and difficulty for each bridge type. TAC suggested the project team consider adding a criterion about difficulty to permit and duration of the permitting process.

Based on TAC feedback, the project team will add a percentage range difference in cost between the bridge types to the scoring and change the cost scoring for cable stayed and suspension bridges to 4 (from 3) (A higher rank is less desirable).

Constructability

There was confusion about the scoring difference between steel truss and steel girder bridges. The project team explained that the gap was due to a hidden row in the excel spreadsheet used for the analysis that calculated scores under certain assumptions. These assumptions did not change to outcomes significantly.

Based on project team presentation, the TAC concluded that the tied arch is most difficult bridge type to construct, and cable stayed and truss are easiest.

Impacts

TAC members wondered if temporary impacts for construction, materials delivery and staging were captured in the scoring. The project team confirmed that it was to some degree, but a more detailed assessment will need to be done later in the project to account for economic impact to the surrounding businesses. Rick Gruen wanted his concern on record with construction-related impacts to local businesses. The project team noted that only a small amount of data in terms of inventory maps have been gathered to assess impacts to wetland streams. It was also mentioned that regardless of what spans the river, there will be impacts to wetlands.

One member said this project should acknowledge the majority of impacts will be to the south side of the river, with the north side accruing very little, if any, impacts. Much consideration needs to take place regarding the impacts to the marina and the time of year of construction. One member asked how much flexibility exists to move the piers within the selected alignment to avoid impacts to structures. The project team said there wasn't much flexibility given the railroad bridge and the need to land at Boones Ferry Road. TAC members said care should be taken in designing of the final bridge type to mitigate the potential for bridge users to launch projectiles off the bridge and damage property. The project team said fences or nets and cameras can be used to mitigate the

potential for property damage from items being thrown from the bridge deck.

TAC members were concerned about wildlife habitat and wanted to see greater differences between the tied arch bridge type and the steel girder and steel truss in terms of permanent impacts because the latter two bridge types have piers in the river while the former does not, and this will have permanent impact on fish habitat. The project team said the tied-arch would have piers below the high-water mark, but the cable-stayed and suspension do not, which is reflected in the scoring.

Additional comments included:

- Would in water work be conducted from barge or work bridge? Could affect navigation.
- What/where would access be for materials?
- ACOE will need to consider all the alignments and understand the rationale during the permitting process.
- Concern raised during the end of the discussion about impacts during construction and permanent impacts to marina and natural resources and whether the best alignment was selected to avoid impacts that are now better understood.

Anne Pressentin flip charted key points of the discussion to gain the group's consensus on the recommendations to move ahead:

- Reflect mitigation cost in the design and construction cost comparison
- Provide more detail to explain the differences and the rationale for the scoring in the ranking tables in the draft report
- Reflect in the rankings the longer permitting window for the bridge types with piers below the high-water mark
- Re-check the ranking methodology to be sure results accurately reflect the analysis
- Remove aesthetics from the ranking because it is subjective.
- The tied arch should not move ahead because the benefits clearly do not outweigh the impacts and cost.
- One each of steel bridge types and cable/suspension bridge types should move ahead. The impacts and costs of the two groups are similar and offer a range of options.

6. Next Steps **2:50 – 3:00pm**

The project team will take public comment through an in-person open house on October 18th and an online open house, which closes at the end of October. After public comments have been summarized, and the TAC and Task Force have recommended two bridge types, the project team will present to City Council and the Clackamas County Board of Commissioners.

Anne Pressentin thanked the TAC for participating and closed the meeting.

Fall 2018 Bridge Type
Public Involvement Summary

November 19, 2018

Prepared for the City of Wilsonville

Prepared By

EnviroIssues
1515 SW 5th Avenue
Portland, OR 97201
503.248.9500

Introduction

The City of Wilsonville, in partnership with Clackamas County, Metro and the Oregon Department of Transportation, is planning and developing preliminary designs for a proposed bicycle/pedestrian/emergency-access bridge across the Willamette River. The bridge would be located at the approximate site of the historic Boones Ferry, located between the I-5 Boone Bridge and the railroad bridge to the west.

Regional and community leaders have worked since 2016 to deliver on a 20-year vision to better connect the region's trail system and close a gap for safe bicycle and pedestrian travel across the Willamette River. In 2018, the Wilsonville City Council and Clackamas County Board of County Commissioners selected an alignment for the new bridge that would connect the City's Boones Ferry Park on the north side of the river to Northeast Butteville Road, opposite the Boones Ferry Boat Launch on the south side. The project team is currently assessing five bridge types for this preferred bridge location.

This report summarizes public input received during October 2018, which will inform discussions of a community task force in December 2018. The task force will make a recommendation to the Wilsonville City Council and Clackamas County Board of County Commissioners, which will narrow the bridge type options to two in early 2019.

Public input opportunities

In October 2018, the project team sought to:

- Continue ongoing education of stakeholders, future bridge users and others about project benefits
- Share information from the technical analysis of each bridge type with the public (including environmental impacts, effects to existing structures, costs, constructability, compatibility with project goals, etc.)
- Gain feedback on bridge type options to allow the task force to make a recommendation to the Wilsonville City Council and Clackamas Board of County Commissioners to narrow choices
- Increase awareness of project process and schedule

Figure 1: Project staff and attendees at Oct. 18, 2018, French Prairie Bridge open house.

The City of Wilsonville invited public input via two primary methods:

In-person open house: The project team hosted an in-person open house on Oct. 18, 2018, at City Hall to share information about the project and solicit feedback. Attendees could view posters and a slide show with images of bridge types under consideration. Project staff were available to present information and answer questions. The project team solicited public input via a paper questionnaire and flip charts corresponding to each of the bridge types (see Appendix A for a transcript of the flip charts).

Figure 2: Project staff and attendee at Oct. 18, 2018, French Prairie Bridge open house.

Fifty-three people attended the open house and 23 attendees completed questionnaires. In addition, nine people completed event evaluations which indicated satisfaction with the information presented and opportunity to provide input.

Online open house: The project team also hosted an online open house Oct. 11-30, 2018. The interactive website provided the same information presented at the in-person event in a digital format. The online open house included a questionnaire with the same questions as the paper questionnaire used at the in-person open house. The website could be automatically translated into Spanish and other languages via Google Translate. More than 1,200 unique users accessed the online open house during 1,400 sessions (meaning some users visited the page multiple times).

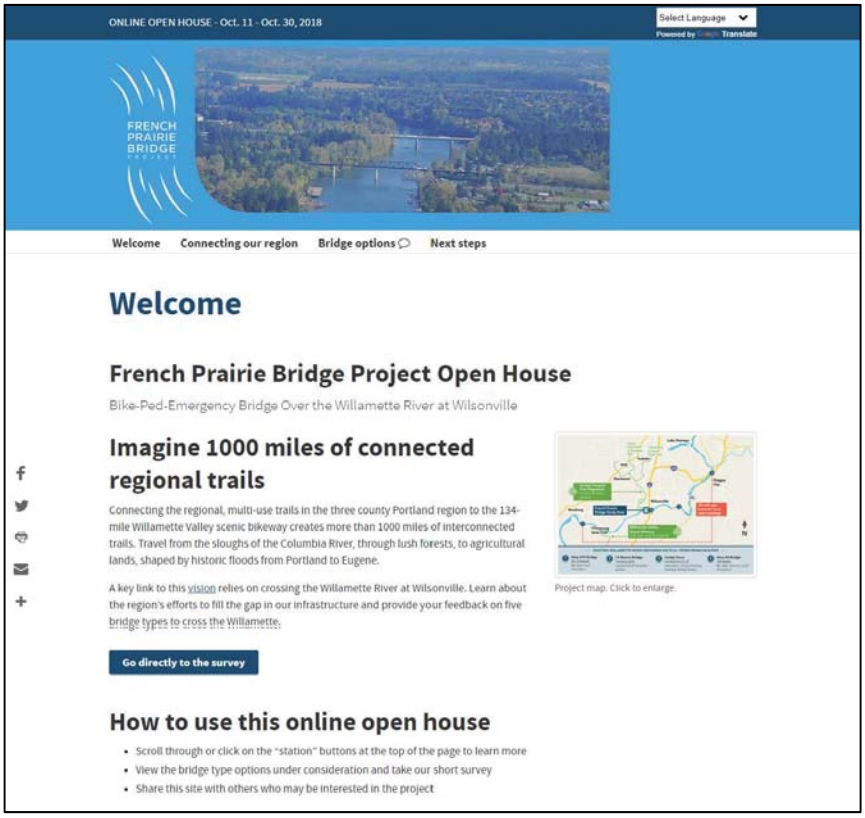


Figure 3: Screen shot of French Prairie Bridge Project online open house.

Notification

The project team used the following methods to publicize the in-person and online open house:

Project website: The project team published information about the open house and a link to the online open house on the project website, www.frenchprairiebridgeproject.org.

Mailer: In early October, a notice in English and Spanish was mailed to 12,854 addresses, which included Wilsonville households and households within a 0.5 mile radius just south of the proposed bridge landing.

Email: Emails were sent to the project mailing list and to news media.

Social media posts: The City of Wilsonville shared information about the open house and online open house in September and October via the City's Facebook and Twitter accounts.

***Boones Ferry Messenger*:** The City featured an article about the input opportunities in its October edition of the monthly newsletter.

Media and blog coverage: The *Wilsonville Spokesman*, *Bike Portland* blog, *Wilsonville Patch* and *Canby Now* published articles about the input opportunities in October.

Feedback analysis methodology

Figure 4: Attendees to Oct. 18, 2018, French Prairie Bridge open house complete questionnaires.

For the purposes of analysis, the results from both the online and in-person questionnaires (which were identical) are discussed together. The questionnaire included 17 questions about the project and five demographic questions. (See Appendix B for text of the questionnaire.) In total, 296 respondents answered at least one question, and 263 completed the questionnaire.

For each bridge type, the questionnaire asked participants to gauge their agreement with three statements related to visual compatibility, user experience, and benefits outweighing costs. Participants were asked if and how they see themselves using the potential bridge and had the opportunity to provide open-ended feedback. The questionnaire gathered demographic data on neighborhood, age, gender identity, and racial/ethnic identity.

The questionnaire did not require participants to answer every question before submitting. Bridge type questions were randomized so that each user answered questions about the five bridge types in a different order. This intentional data collection technique was used to

ensure that every bridge type gathered responses and led to slight variations in the number of responses received for each bridge type. There was no substantial drop in response numbers for any bridge type.

Responses were not limited by Internet Protocol (IP) address so that multiple members of the same household or workplace could submit feedback. The project team reviewed data by IP address, and no evidence of intentional multiple submissions was found.

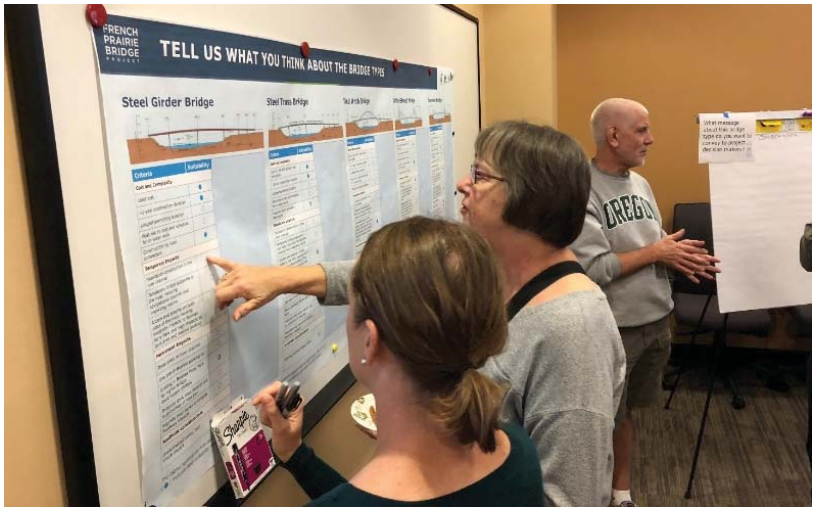


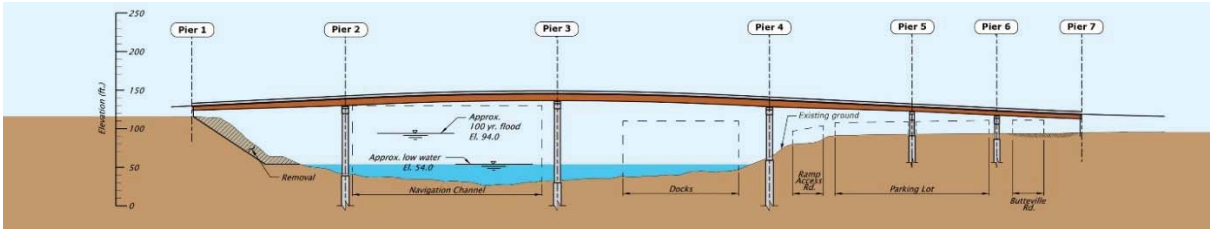
Figure 5:Project staff and attendee at Oct. 18, 2018, French Prairie Bridge open house.

The questionnaire results are not statistically representative, meaning the respondent sample is not predictive of the opinions of the Wilsonville or Clackamas County population as a whole. Questionnaire respondents are more likely to be male and older than the Wilsonville average (see demographics section on page 7 for more information).

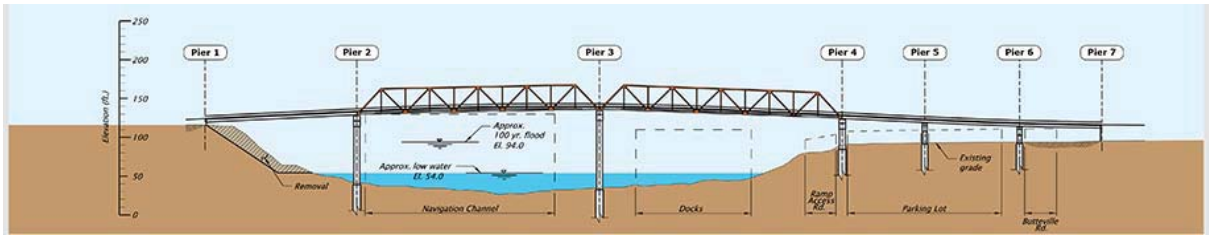
Key takeaways

- Many respondents identified aesthetics, cost of construction and impacts to the river as top considerations for them when deciding on a bridge type.
- The cable-stay and suspension bridge types were viewed more favorably by many respondents than other bridge types because they would not involve constructing piers in the water and because they offer a signature or statement look that is different from other bridges in the area. The steel girder bridge type also was viewed favorably by many due to its unobstructed views from the bridge and visual compatibility with surroundings. The steel truss bridge type received the most negative responses.
- Respondents expressed mixed opinions on the need for the project and the need to get it started right away.
    - Respondents who questioned project need often said alleviating vehicle congestion was a higher priority than building a non-vehicle bridge.
    - Respondents seeking to build the project quickly cited the safety benefits for bicyclists and pedestrians, potential positive impact on tourism and potential to attract private investment.
- Across the board, respondents appear skeptical that the positive benefits of these bridge types outweigh the costs and negative impacts. Just over half said benefits outweigh the negative impacts for cable stay and suspension bridge types, but respondents don't believe this is the case for the other three bridge types.

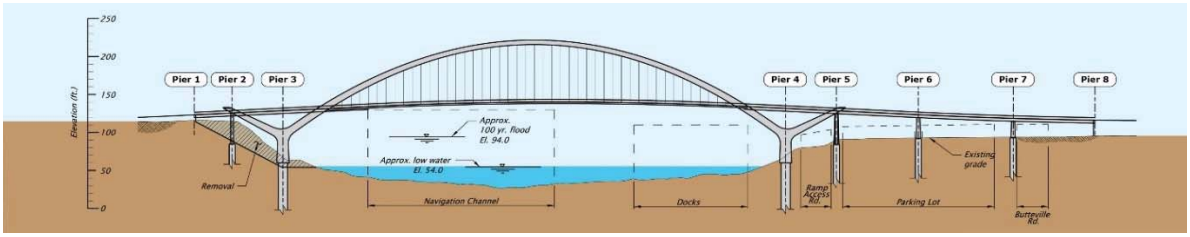
Bridge types under consideration:



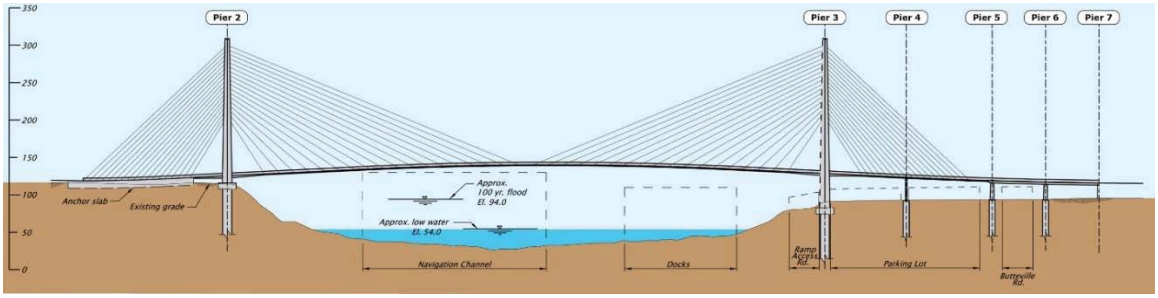
Steel Girder



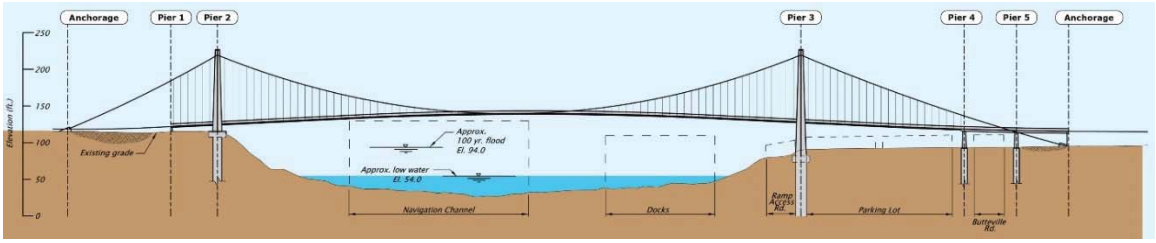
Steel Truss



Tied Arch



Cable Stay



Suspension

Demographics

Neighborhood of residence: About 60 percent of questionnaire participants lived in Wilsonville. Of those, the most represented neighborhoods are Charbonneau, Villebois, Daydream Ranch, Old Town, Park at Merryfield and Landover. About 35 percent of questionnaire participants live outside of Wilsonville in surrounding Portland-metro area communities. About 5 percent live elsewhere in Oregon or out of state.

Table 1: Respondent's age

Age	Survey respondents	Wilsonville population
20-24	2%	7%
25-34	13%	10%
35-44	15%	8%
45-54	24%	13%
55-59	12%	6%
60-64	10%	6%
65-74	18%	7%
75+	5%	7%

Age: Year of birth data was compared using the demographics from the 2012-2016 American Community Survey. Wilsonville's median age is 36 years and the average age of respondents is about 53 years. The most represented age bracket of survey responders falls is 45-54 years at 24 percent, but the same demographic makes up 13 percent of Wilsonville's population.

Race/Ethnicity: About 82 percent of participants identified as White/Caucasian alone, compared to 85 percent of Wilsonville residents. The Hispanic or Latino community was underrepresented, making up 14 percent of Wilsonville residents but only 3 percent of questionnaire participants. Asian/Pacific Islander represents 6 percent of Wilsonville residents, but only 2 percent of survey respondents. African American/Black participants made up less than 1 percent of respondents but represent 3 percent of Wilsonville residents. Native Americans fell within a percentage point of survey participation and Wilsonville resident demographics. Participants who identified as more than one race matched Census data for the City at 4 percent. None of the 'other' responses denoted a categorical race or ethnicity.

Table 2: Survey respondent's race/ethnicity

Race/Ethnicity	Survey respondents	Wilsonville population	Total
African American/Black	<1%	3%	1
Asian/Pacific Islander	2%	6%	4
Hispanic/Latinx	3%	14%	7
Native American/American Indian	2%	1%	4
White/Caucasian	82%	85%	195
Mixed Race	4%	4%	10
I prefer not to say	13%	-	31
Other – write in	3%	-	8

Gender: Female participation comprised 27 percent of survey responses and nearly 54 percent of Wilsonville's population. Many survey participants identified as male (40 percent), many preferred not to answer (31 percent) and one participant identified as genderqueer.

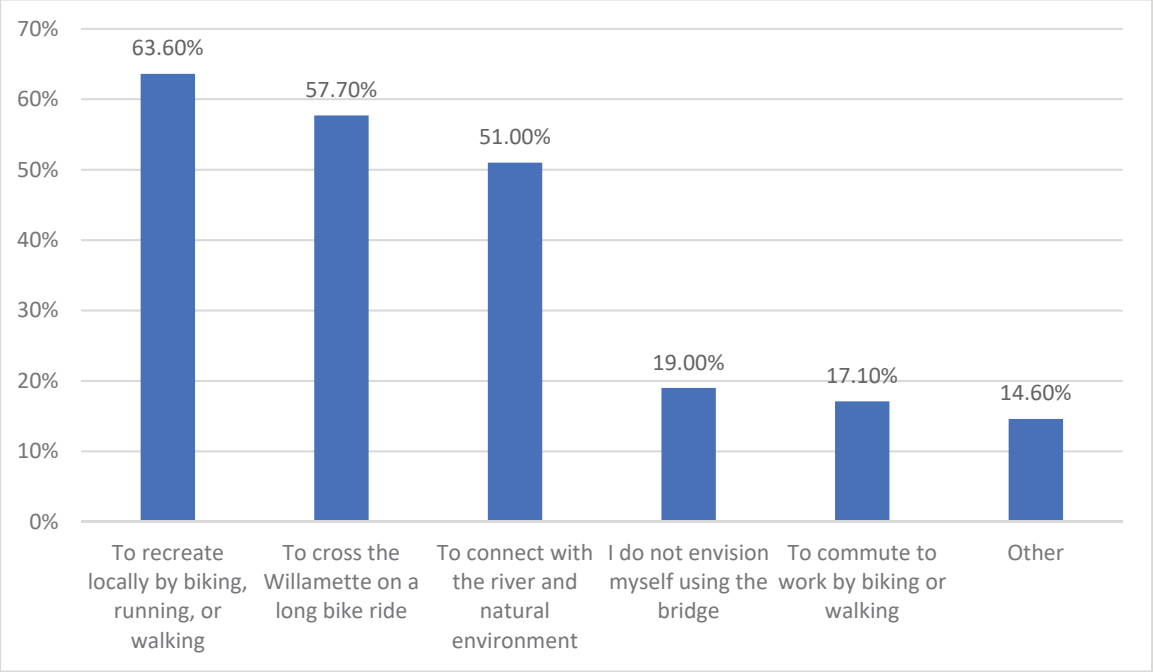
Questionnaire results: Closed ended questions

The following section has results for the closed-ended questions.

Future use of a new bridge

Participants were asked how they envisioned themselves using a new bridge (Figure 6). Respondents could select multiple responses.

Figure 6: How do you envision yourself using the bridge? (N = 256)



Respondents indicated they would most likely use the bridge to recreate or connect with the natural environment. Fewer than 20 percent of respondents said they did not envision themselves using the bridge.

Almost 15 percent (37 responses) selected “other” and wrote in a response. Of those, most participants said the bridge would be best utilized in case of emergency, like a natural disaster or traffic incident on the Boone Bridge that would otherwise prevent emergency responders from crossing the river. Other responses included walks with friends and family and commuting by bike to amenities on opposite sides of the river like shopping, groceries and dining. Some participants said they would use the bridge if it were built but said there were much greater transportation needs in the area. A few were concerned that the bridge would bring increased crime and vandalism to their neighborhoods. (See Appendix C for all written responses.)

Questions on bridge type

For each bridge type, respondents were asked how much they agree with three statements based on the technical information provided (Tables 3, 4 and 5):

1. This bridge type is visually compatible with the surrounding build and natural environment.
2. This bridge type would provide a positive user experience.
3. The positive benefits of this bridge type outweigh the costs and negative impacts.

Table 3: Percent of respondents who agreed or disagreed with the following statement: This bridge type is visually compatible with the surrounding built and natural environment.

	Strongly or somewhat agreed	Strongly or somewhat disagreed	Unsure	Total responses
Steel Girder	61%	33%	1%	269
Steel Truss	44%	55%	1%	262
Tied-Arch	60%	39%	2%	260
Cable Stay	66%	33%	1%	268
Suspension	74%	25%	1%	260

Table 4: Percent of respondents who agreed or disagreed with the following statement: This bridge type would provide a positive user experience.

	Strongly or somewhat agreed	Strongly or somewhat disagreed	Unsure	Total responses
Steel Girder	63%	36%	1%	268
Steel Truss	43%	55%	3%	261
Tied-Arch	73%	24%	3%	258
Cable Stay	80%	18%	2%	266
Suspension	81%	18%	1%	259

Table 5: Percent of respondents who agreed or disagreed with the following statement: The positive benefits of this bridge type outweigh the costs and negative impacts.

	Strongly or somewhat agreed	Strongly or somewhat disagreed	Unsure	Total responses
Steel Girder	48%	50%	3%	270
Steel Truss	27%	68%	5%	259
Tied-Arch	34%	61%	5%	260
Cable Stay	57%	39%	4%	268
Suspension	62%	35%	3%	260

A slight majority of respondents generally feel all the bridge types would be visually compatible, with the exception of the steel truss type. More than half of all respondents agreed that four of the five bridge types (steel girder, tied-arch, cable stay and suspension) would be visually compatible with the surrounding environment. The exception was the steel truss bridge type, which received the lowest level of agreement across all three statements.

Greater majorities of respondents generally feel most bridge types will provide a good user experience, with the exception of steel truss. For four of the five bridge types (steel girder, tied-arch, cable stay and suspension), respondents had more favorable responses on user experience than visual compatibility.

For the steel truss, the total negative response was similar to the visual compatibility results, but there were fewer respondents who strongly disagreed. For the cable stay and suspension bridge, a greater percentage of respondents strongly agreed these bridge types would provide a positive user experience. Overall, the greatest proportion of respondents agreed the suspension bridge would be visually compatible and provide a positive user experience.

Across the board, respondents appear skeptical that the positive benefits of these bridge types outweigh the costs and negative impacts. Just over half said this is true for cable stay and suspension bridge types, but respondents don't believe this is the case for the other three bridge types. More than half of respondents agreed that cable-stay and suspension bridges had benefits that outweighed the costs, though agreement on this issue was less strong than the other statements. Conversely, a plurality of respondents felt that the benefits of building a steel girder, steel truss and tied-arch types did not outweigh the costs.

Questionnaire Results: Open Ended Questions

Two open ended questions were asked:

1. What else should project decision makers know about the bridge types? (121 responses)
2. What additional questions do you have? (64 responses)

Topics and themes in responses to these questions were very similar, so the comments have been combined for the analysis. The project team reviewed and categorized each open-ended comment based on the topics discussed. Table 6 summarizes the frequency of topics mentioned in these open-ended comments. Many comments discussed multiple themes and could therefore be categorized into multiple categories. The following sections discuss key messages, questions and concerns related to these categories. Verbatim comments are presented in Appendix C.

Table 6: Open ended comments by thematic topic

Topic	Number of comments	Percent of all comments
Bridge aesthetics	46	25%
Cost of construction and/or maintenance	45	24%
Project need	31	17%
Piers in the water	20	11%
Project schedule	18	10%
Vehicle congestion on nearby roadways	16	9%
User experience	13	7%
Seismic resiliency	8	4%
Decision process	8	4%
Design considerations	8	4%
User safety	7	4%
Funding / revenue	6	3%
Emergency response	6	3%
Fish and wildlife	5	3%
Long-term effects	4	2%
Nuisance behavior	4	2%
Future users of facility	3	2%
Alternatives considered	2	1%
Crime	1	1%
Other topics	2	

Bridge aesthetics:

Approximately 25 percent of all open-ended responses discussed how the bridge would look.

- More than a dozen comments said aesthetics should be a top priority. They said a special or statement bridge could help attract tourists and more investment to the area. Some said aesthetics was more important than cost.
- Many commenters provided their preference or opposition of a particular bridge type based on aesthetics:
    - Steel truss was mentioned as the least attractive by several respondents because this bridge type already exists in Wilsonville.

    - Several said the steel girder was most attractive because of its simplicity and ability to fit in with the surroundings. One person suggested using pots and trees on the bridge deck to fit in with surroundings. Another said a steel girder could be built with walls and a roof to match historic covered bridges.
    - A handful of comments suggested a suspension or cable-stayed bridge was the most attractive, modern option and would serve as a "signature bridge."
    - Two respondents suggested the tied-arch as their preferred option.
- Other comments related to aesthetics mentioned:
    - Preference for matching neighboring bridges
    - Adding finishes or treatments to the façade to improve aesthetics
    - Requests for photo visualizations to better understand compatibility
    - Arguments that aesthetics should be secondary to cost
    - Calls for ensuring the bridge has a high aesthetic value
    - Statements that all options look nice

Cost of construction and/or maintenance

About a quarter (24 percent) of comments mentioned the cost of construction or long-term maintenance.

- Many of these commenters said selecting a lower cost bridge option is a priority.
- A few commenters said the project is a waste of funds given the high expected cost and importance of other regional priorities.
- A few commenters said they would support a higher cost bridge because it is an investment in the community and will attract tourists.
- Other comments related to cost included:
    - Questions about the total cost
    - Preference for not selecting the bridge type without knowing what funds are available
    - Calls for maintenance costs to be considered during decision-making

Project need

About 16 percent of comments discussed project need.

- Most of these comments questioned the need for the project given other transportation priorities – specifically to resolve congestion of the I-5 corridor and Boone Bridge – and other community needs.
- Some said the project should not be built because they do not perceive a need for it.
- A few comments specifically said the project will benefit the safety of bicyclists and pedestrians and will attract users, making it needed.

Piers in the water

About 10 percent of comments advocated for fewer piers or avoiding piers in the water either to prevent flooding, protect fish and wildlife habitat, avoid navigation impacts and/or avoid lengthy permitting processes related to construction in the water.

Project schedule

About 10 percent of comments focused on schedule. Several said the project should proceed a soon as possible. Some said sticking to a schedule was important and construction should not extend past two years. Some others asked questions about when project construction would start and/or end.

Vehicle congestion on surrounding roadways

Vehicle congestion was mentioned in about 8 percent of comments. Frequently, commenters who questioned the need for the project said congestion was a higher-priority problem. Some specifically mentioned the need to improve the Boone Bridge. A few questioned if the French Prairie Bridge would alleviate congestion on the I-5 Bridge. Others said the French Prairie Bridge would lead to vehicle congestion on local roads after the project was constructed.

User experience

About 7 percent of comments mentioned bridge user experience, saying that views from the bridge should be a high priority. A few mentioned the steel girder bridge as preferred because of the unobstructed views from the bridge. Other comments included:

- See-through decking from a high bridge can be frightening
- Calls to consider off-bridge connections to planned or existing trails to enhance user experience
- Calls to add viewing platforms

Other topics included:

- ***Seismic resiliency***: Some comments questioned if the bridge designs would be built to withstand an earthquake.
- ***Design considerations***: Some comments provided suggestions or had questions about lighting, maximum grade of the bridge, ADA accessibility, width of the bridge and use of sustainable features (e.g. solar panels)
- ***Decision process***: Some comments suggested a vote was needed before a final decision should be made.
- ***User safety***: A few comments highlighted safety concerns on roads leading to/from the French Prairie Bridge, while a few others supported a new bridge due to the existing safety concerns with the I-5 Boone Bridge.
- ***Funding/revenue***: A few comments asked where construction funding would originate. One comment suggested the steel girder bridge could best be used to also carry utility lines, which could help generate fees from the utility owner.
- ***Long-term effects:*** A few comments said it is important to consider the lifespan of the facility when making a decision. Others advocated for considering any long-term effects to the marina and natural resources.
- ***Emergency response:*** A few comments said the new bridge would enhance emergency response because the new bridge could be used by responder vehicles to reach incidents if I-5 is congested.
- ***Nuisance behavior:*** A few comments said efforts are needed to prevent nuisance behavior such as throwing items from the bridge or painting graffiti. Two comments

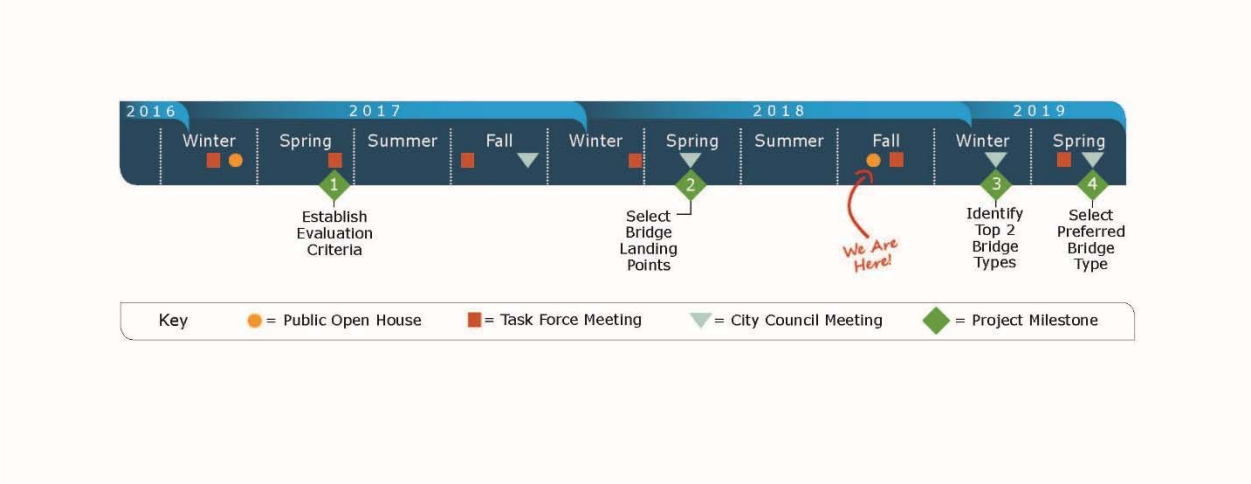
said the steel girder and steel truss were more inviting to nuisance behavior because these bridge types are not as artistic.

- ***Fish and wildlife:*** A few comments mentioned the need to avoid impacts to wildlife or use the project to enhance habitat.
- ***Alternatives considered***: A few comments questioned whether enhancements to the Boone Bridge were considered to address the project need.
- ***Future users of facility***: A few comments questioned who would use the bridge in the future. Two comments suggested that golf carts should be allowed.
- ***Crime***: One comment suggested a new bridge would bring more crime to the area.
- ***Jobs***: One comment asked about the potential for short and long-term job creation for each bridge type during design and construction.

Conclusion and next steps

The results of this outreach and engagement effort will be provided to the project's task force in advance of discussions to recommend two bridge types to the Wilsonville City Council and Clackamas County Board of County Commissioners. The results also will be provided to the project's technical advisory committee.

The Wilsonville City Council and Clackamas County Board of County Commissioners are expected to select two bridge types for additional technical analysis in early 2019 and make a final decision on a preferred bridge type in spring 2019.



APPENDICES

APPENDIX A:

Comments received on flip charts at Oct. 18, 2018 open house

Steel Girder

- General design has potential to blend well with existing railroad bridge
- No “statement” made for Wilsonville ☹

Steel Truss

- Match adjacent bridge which may be visually appealing (less “messy”)

Tied Arch

- Far too many adverse impacts, along with highest cost!
- Highest economic impact locally (more jobs and materials sourced here)

Cable Stay

- Least adverse impacts, with best aesthetics. Great choice – IF we can afford it!!
- Like the look of this one the best, unique look!
- Less impacts to the river.
- An iconic bridge (like this) supports local economy!
- #1 choice

Suspension

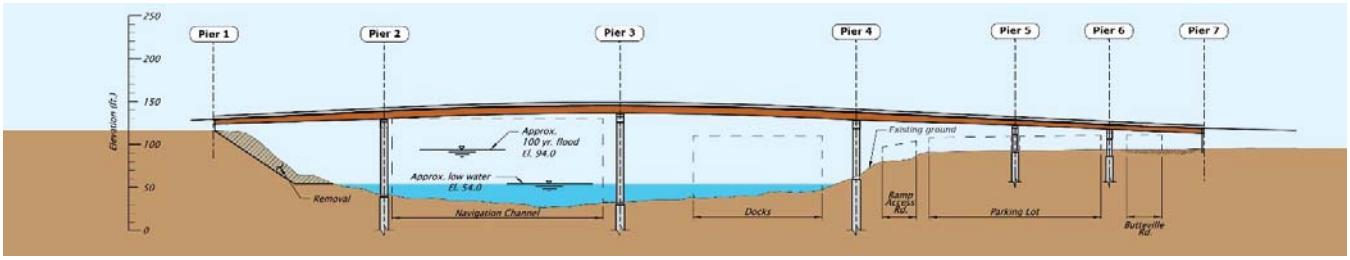
- Just do it!
- The better looking the better!
- This would offer advantages of less environmental impact
- Would certainly be a “statement” (beautiful) bridge

APPENDIX B: Questionnaire

French Prairie Bridge Project

Fall 2018 Open House Survey

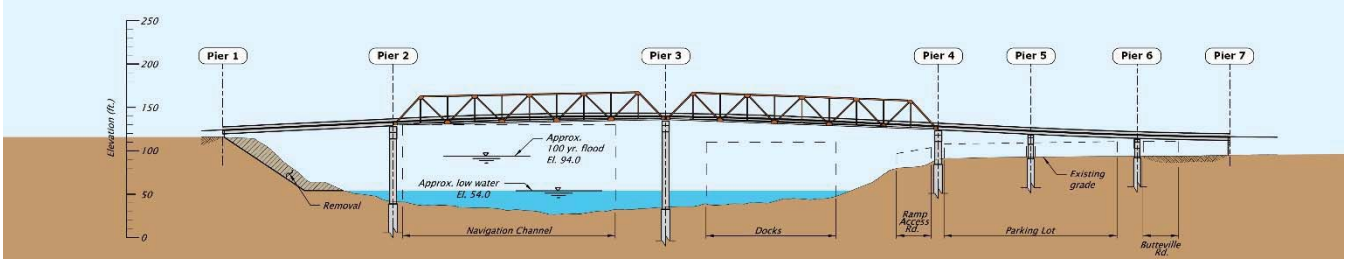
Steel Girder Bridge



Provide your level of agreement with the following statements:

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure
1. This bridge type is visually compatible with the surrounding built and natural environment	( )	( )	( )	( )	( )
2. The bridge type would provide a positive user experience.	( )	( )	( )	( )	( )
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	( )	( )	( )	( )	( )

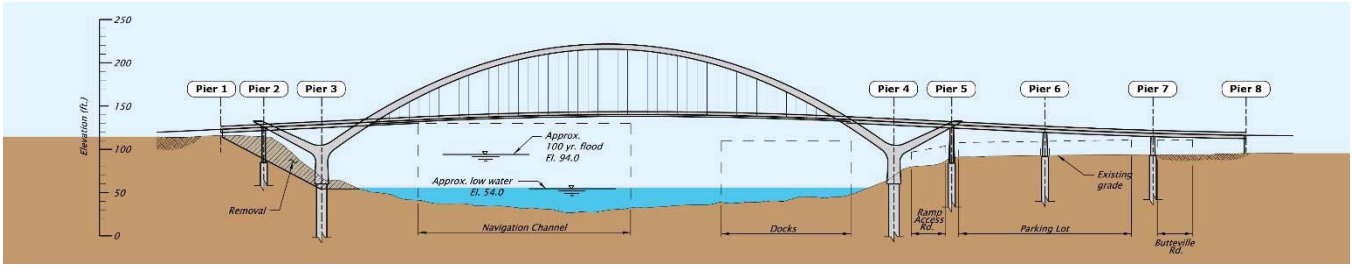
Steel Truss Bridge



Provide your level of agreement with the following statements:

	Strongly agree	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**	**Unsure**
1. This bridge type is visually compatible with the surrounding built and natural environment	( )	( )	( )	( )	( )
2. The bridge type would provide a positive user experience.	( )	( )	( )	( )	( )
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	( )	( )	( )	( )	( )

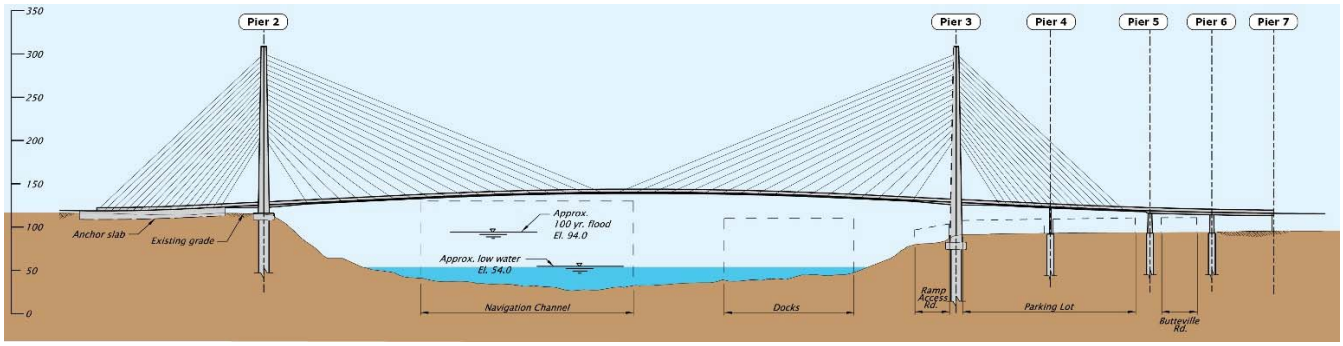
Tied-Arch Bridge



Provide your level of agreement with the following statements:

	Strongly agree	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**	**Unsure**
1. This bridge type is visually compatible with the surrounding built and natural environment	( )	( )	( )	( )	( )
2. The bridge type would provide a positive user experience.	( )	( )	( )	( )	( )
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	( )	( )	( )	( )	( )

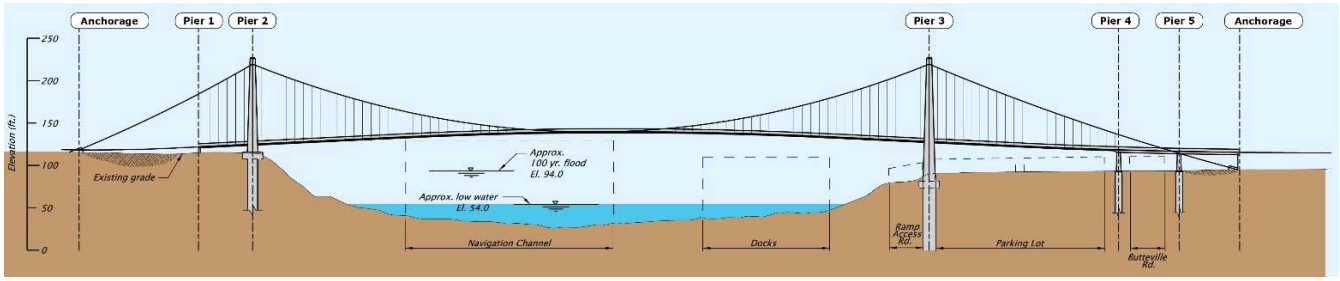
Cable-Stayed Bridge



Provide your level of agreement with the following statements:

	Strongly agree	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**	**Unsure**
1. This bridge type is visually compatible with the surrounding built and natural environment	( )	( )	( )	( )	( )
2. The bridge type would provide a positive user experience.	( )	( )	( )	( )	( )
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	( )	( )	( )	( )	( )

Suspension Bridge



Provide your level of agreement with the following statements:

	Strongly agree	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**	**Unsure**
1. This bridge type is visually compatible with the surrounding built and natural environment	( )	( )	( )	( )	( )
2. The bridge type would provide a positive user experience.	( )	( )	( )	( )	( )
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	( )	( )	( )	( )	( )

What else should project decision makers know about the bridge types?

What additional questions do you have?

A little about you:

What neighborhood do you live in? _____

How do you envision yourself using the bridge?

[ ] To commute to work by biking or walking

[ ] To connect with the river and natural environment

[ ] To recreate locally by biking, running or walking

[ ] To cross the Willamette on a long bike ride

[ ] I do not envision myself using the bridge

[ ] Other - Write In: _____

I describe my gender as _____

How do you identify yourself culturally? (select all that apply)

[ ] African American/Black

[ ] Asian/Pacific Islander

[ ] Hispanic/Latino(a)

[ ] Native American/American Indian

[ ] White/Caucasian

[ ] Mixed Race

[ ] I prefer not to say

[ ] Other - Write In: _____

What year were you born?_____

Thank You!

APPENDIX C: Response Statistics and Open End Responses

1.Provide your level of agreement with the following statements:

STEEL GIRDER	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure	Responses
1. This bridge type is visually compatible with the surrounding built and natural environment	83 30.9%	81 30.1%	47 17.5%	55 20.4%	3 1.1%	269
2. The bridge type would provide a positive user experience.	83 31.0%	86 32.1%	46 17.2%	50 18.7%	3 1.1%	268
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	78 28.9%	51 18.9%	65 24.1%	69 25.6%	7 2.6%	270

2.Provide your level of agreement with the following statements:

STEEL TRUSS	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure	Responses
1. This bridge type is visually compatible with the surrounding built and natural environment	38 14.5%	77 29.4%	61 23.3%	83 31.7%	3 1.1%	262
2. The bridge type would provide a positive user experience.	35 13.4%	76 29.1%	78 29.9%	65 24.9%	7 2.7%	261
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	22 8.5%	49 18.9%	71 27.4%	104 40.2%	13 5.0%	259

3.Provide your level of agreement with the following statements:

TIED-ARCH	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure	Responses
1. This bridge type is visually compatible with the surrounding built and natural environment	78 30.0%	77 29.6%	37 14.2%	64 24.6%	4 1.5%	260
2. The bridge type would provide a positive user experience.	98 38.0%	91 35.3%	26 10.1%	35 13.6%	8 3.1%	258
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	34 13.1%	55 21.2%	63 24.2%	95 36.5%	13 5.0%	260

4.Provide your level of agreement with the following statements:

CABLE-STAY	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure	Responses
1. This bridge type is visually compatible with the surrounding built and natural environment	101 37.7%	77 28.7%	34 12.7%	53 19.8%	3 1.1%	268
2. The bridge type would provide a positive user experience.	141 53.0%	73 27.4%	14 5.3%	34 12.8%	4 1.5%	266
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	84 31.3%	69 25.7%	38 14.2%	67 25.0%	10 3.7%	268

5.Provide your level of agreement with the following statements:

SUSPENSION	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure	Responses
1. This bridge type is visually compatible with the surrounding built and natural environment	118 45.4%	74 28.5%	28 10.8%	37 14.2%	3 1.2%	260
2. The bridge type would provide a positive user experience.	147 56.8%	62 23.9%	14 5.4%	33 12.7%	3 1.2%	259
3. The positive benefits of this bridge type outweigh the costs and negative impacts.	84 32.3%	77 29.6%	34 13.1%	58 22.3%	7 2.7%	260

6.What else should project decision makers know about the bridge types?

ResponseID	Response
15	We should focus on cost and functionality. All bridge options look good except the Steel Truss Bridge. We don't need another Steel Truss Bridge in Wilsonville.
16	Most economic outlook in building as well as least amount of disruption to properties on both sides. Shortest amount of construction time should be considered for properties on both sides
17	This type of design would allow for secondary uses such as hiking opportunities to the top (Sydney Australia harbor bridge). Pull-out rest areas mid span for photos, picnics, etc.
19	Please select a type that matches one of the neighboring bridges.
25	In-river piers present river safety hazard near the high-hazard marina area due to boat ramp, docks, vision blockage & constriction of boating flow. This new hazard will only worsen with time due to increased river traffic. In-river piers should be avoided at all costs.

28	This bridge needs to be a "signature" span. A typical steel girder bridge will not look good and will not add to the user experience. The bridge will be visible from literally every angle, and aesthetic considerations should be a top priority. There are parks on both sides, river users below, I-5 traffic will see the bridge, as well as home owners along the river on both sides of the bridge. Make sure it's not an eyesore. It's worth the wait and the additional cost to make it beautiful. The arch bridge type matches the site perfectly.
29	Given that this bridge provides such limited service, I think that the least amount of money should be spent as possible.
34	Wow. I thought the Minto bridge was overbuilt when I crossed it. Guess my sentiments were accurate. There is no reason to select that takes an extra year to build, and costs at least 70% more than the Steel Girder. I think the Steel Girder bridge is quite attractive. Crossing the river should have the least visual interruption to the pedestrian or bicycle rider. I like that the Steel Girder choice maximizes the enjoyment of the natural beauty around the bridge.
38	Seeing as Wilsonville also not only has a lot of trees and caters to the business community, it also is a haven for artists. Considering the Girder and Truss bridges are more easier targets for graffiti and vandalism, I would say that going more for aesthetic would not only please those in the art community, but also discourage such easy targets for illicit spray-painting. Also, the Steel Girder and Truss Bridges look too like the existing train bridge, and therefore would not stand out from it, and it would be an aesthetic eyesore across Wilsonville's portion of the Willamette River. I would like to see a bridge that not only allows pedestrians to cross the river, but also shows creative aesthetic that should be synonymous with Wilsonville and the varying sculptures embellishing our good town.
39	For the intended use, the steel girder is the least visually intrusive and lowest cost option. It also may become an attractive nuisance if users can throw stuff off the bridge onto the docks below. Some sort of barriers is needed.
43	I bike Boones Bridge at least once a month, more in the summer, less in the winter. Pretty bridge, ugly bridge I don't care, we need a safer and better maintained crossing for bikes and pedestrians! FAST TRACK THIS, NO DELAYS!
44	Practicality of construction and the overall views of the river are more important than the beauty of the bridge itself. For example, in my opinion one of the most beautiful views is from the I-5 Columbia crossing east across the I 205 bridge with Mt Hood and sailboats in the background, because the 205 bridge is so unobtrusive. One of the

	worst, and most cluttered views is of the new Portland transit bridge, even though the bridge itself is attractive.
49	Avoiding piers in the river is important. The steel truss bridge is just ugly. It is ok to spend a little extra money for a once in a lifetime bridge development. The suspension bridge and cable stayed are the best ones. The tied arch bridge seems too pricey and taking longer than 3 years to build is not practical.
50	The Steel Girder Bridge is Simplistic and Big Pots of Trees and Benches could be put along the overhead walk to enhance the beauty of the River and Nature. This bridge would fit well and could be used well for emergency access across the Willamette.
51	I travel all over Europe and America. Great towns build great bridges.
56	We don't want or need this bridge!
57	Least impact to wildlife. Best view of river.
59	What is the cost to upgrade the I5 bridge seismically? What is the budget cost of this bridge? Why is I5 bridge not being upgraded first? 6 lanes of traffic versus one lane does not make a lot of sense.
64	No bridge! Focus on relief for drivers! This bridge won't help Wilsonville residents. Do what the people of Wilsonville need and that's help with congestion
66	Wilsonville needs something more beautiful. We want something that will beautify our town and not look like more strip mall style city planning.
68	The tied-arch bridge is by far the most visually appealing option.
69	Consider the visual attractiveness and the positive impact that would have on the city and tourism trade.
72	There should not be a bridge built at this location. The impact on rural roads leading to Canby and impact on Canby's traffic is not being considered.
73	Make sure the grade is less than 5% on either side and provides a cool downriver view. Also, whatever can be built faster should take priority.
74	The bridge will only increase crime in the area. It will not be safe at night. It will just become another way for transients to get from their

	camps to parts of town where they can panhandle and steal. It will increase traffic and littering in the neighborhood. This is not good for the taxpayers of Wilsonville!
80	People will use the bridge because it's there, not because it's beautiful. Also, see-through decking at-or-above 100 feet from the water is frightening, to both children and adults. It won't matter if the bridge is there if you can't muster the courage to cross it.
82	We need more car lanes. I do not support a bridge that is biker and pedestrian friendly only. It is a waste of taxpayer money and will only add to the congestion problem at the Boone Bridge.
88	Considering that this bridge is also meant as an "emergency" crossing, I think the most important aspect to consider is which of these bridge types is most likely to survive a large earthquake.
89	A pretty design will be seen from the I-5 bridge and encourage folks to seek it out and become a destination. Instead of a strictly utilitarian bridge such as the steel girder bridge. Plus, there are already many piers in the river there already causing navigation hazards, please don't add more piers.
91	The best type of bridge would permit automobile traffic. This is a giant waste of money. The people proposing this thing should have to make their case to the voters.
94	The impacts are too great on the environment, traffic, and the neighborhood. Costs are too high. This project is not a good use of public funding nor should it be a priority.
98	We need a bridge that cars can drive upon. Traffic congestion is at unacceptable levels and will increase as the population increases due to new homes being built.
100	Risks to project schedule from in water work are a big factor. I think the suspension bridge is the best compromise, plus it would look great!
101	The most important thing is the connection, and building it as soon as possible, and to last if possible. It's going to be a tremendous benefit to bicyclists in the Willamette Valley and pedestrians more locally.
106	The sides of the bridge should be high enough to discourage either the public or debris to be thrown or jump into the river. Shorter sides may be more aesthetic but are much more dangerous. Safety needs to be of the utmost concern.

107	Please select the lowest cost solution
108	The cable stayed bridge and suspension bridge types would have the least impact on the river (as well as little in-water work) and are the most aesthetically pleasing. They are the obvious choices despite their higher cost. Compared to the suspension bridge, the cable stayed bridge seems to be a more modern, more robust, and more easily constructed design. Let's have a cable stayed bridge!
109	Two primary factors for me: Cost and length of time to get it up and running. I want the least cost with the quickest usability as possible.
110	The more beautiful the better.
114	Steel girder is clean, simple and IMO more likely to look good 50 years from now. And cheapest doesn't hurt either.
120	It will be around for 50-100 years, so think of future development and uses, particularly emergency access/use.
121	There are many that feel this bridge is not necessary, a waste of tax payer's money. I feel it will provide another way to cross the river to the north and am for it. But I do feel it needs to be done in an economical way. So, I vote for the least expensive option. I also feel the least expensive option will blend with the surrounding scenery. Spending money wisely on projects is important to me.
124	Please plan for the long-term and not just the cheapest bridge option.
126	1. Is there possibilities to incorporate wildlife habitat under/near bridge? Bat boxes, light pollution reduction, etc.
127	I'd suggest removing the truss from consideration. The only apparent benefit over the basic girder is the 'enclosure' of the users; while this may be desirable from a psychological perspective, it's not clear that this is worth the disadvantages. I also think the cable-stay towers may be too tall of a visual impact, and would suggest the suspension bridge over the cable-stay
132	They need to give the highest priority to the lowest cost option. The steel girder bridge would also have the least amount of visual impact to our River frontage.
133	First, assuming all the five choices presented are equally sound, fiscally within the budget (and most are not!), up to current earthquake standards and adequate pedestrian safety margins when emergency vehicles pass, I would greatly prefer the clean, lower profile Steel

	Girder Bridge option. I would be VERY disappointed to see the higher profiles of the other bridge options in our skyline unless increased safety and lower budget was a factor in the choice. The Steel Girder Bridge is a simple, clean looking option, and would not interrupt the beauty of our natural skyline. It should NOT be an expensive piece of art but a safe, practical, affordable! bridge for our community.
141	Don't waste taxpayer dollars on something that is not necessary.
148	Marketing the 1,000-Mile Loop to tourists could best be accomplished, I think, by the cable-stay bridge, because it's got such a unique style that's eye catching, and, of course, would be visible to many tourists as they travel I-5! The suspension bridge option, though not as eye-catching, could work, too, especially for residents who don't want too much of an eye-catcher. These two bridges keep piers out of the main river channel and apparently have the least piers on land, too, especially in the existing parking area. So, even though more expensive in overall costs, they could be looked upon as an investment in terms of marketing the trail to tourists, the long-term gains to Willamette Valley businesses outweighing the initial costs. So, there's some marketing and tourism benefits potentially related to the bridge types eventually chosen, a couple more factors to consider perhaps.
151	Steel truss bridge - We do not like this option! Tied-arch bridge - too expensive Cable-stayed bridge - too expensive Suspension bridge - too expensive
152	Toll bridge to offset cost (?)
163	Important for bridge to be an attraction for Wilsonville. Pull in tourism money.
164	-Not building piers in the river should be an advantage from environmental view -And construction "uncertainties" would be minimized
166	-Steel Girder Bridge: not a fan - boring, don't like the pylons -Steel Truss Bridge: have one already - boring, no pylons -Tied-arch Bridge: 3rd choice - Cable stayed Bridge: 2nd choice - but I don't want what Portland has - needs to be set apart, a bridge people want to come here to see - Suspension Bridge: 1st choice - yes it's the most expensive but worth it - no pylons - just make sure there is something unusual about it. Factor in protective side nets, should be able to drive golf carts across from Charbonneau if possible.
167	The proximity of the steel truss rail bridge currently on the site makes this type for the pedestrian bridge a bit confusing. I think visually the

	area would benefit most from types that can contrast the steel truss namely cable-stayed and suspension.
168	-Special and iconic design will draw more visitors -Should select least intrusive: no pillars in the river or at marina -Let's not have same look/design as the two existing bridges, again won't be appealing -Needs to fit with the new Boones Ferry Park improved design too
170	Steel girder bridge: general design has potential to blend well with the aesthetics (such as they are) of the railroad bridge
172	Steel girder bridge: too mundane for Portland current bridge designs
173	Owners should be fully aware of available budget and not move forward an unaffordable bridge type.
174	Cost
175	Just get it done!
178	Any impact to marina parking or uses of the docks is unacceptable. Why do you keep identifying "best suitability" when it is a minor impact to Boones Ferry Park but high impact to the marina? That is not BEST Suitability. That is self-serving.
179	Add artistic finishing to the bridge, like facades on buildings are made
181	I would like to see stated for all to consider: 1) What the earthquake suitability is for each type of bridge, and 2) A projected visual of each bridge type against the current railroad bridge (view from Boone Bridge, for instance) in order to evaluate the aesthetics of each design and compatibility with the existing RR bridge structure. Right now, all I can do is try to visualize it in my head, but that doesn't tell me exact height comparisons, nor does it inform me how the in-river piers may align with the RR bridge piers, which would seem to be a critical consideration for boaters.
182	Practicality and safety should outweigh high-cost aesthetics. Set an example on how to get the job done as economically, safely and as quickly as possible. The Frog Pond development is going to negatively impact traffic in an already congested town.
184	Go with the cheapest. This is a folly and as such does not warrant consideration as art.
186	I believe it is worth the extra time to build a bridge that is visually appealing, unique to Wilsonville area and can become known as a

	"landmark" for our area for many years to come. The Steel Truss bridge is too much like the existing railroad bridge that spans the Willamette near I-5.
187	Any expenditure for a bridge that does not include a dedicated lane to move traffic south from Wilsonville to Butteville Road would be a mistake. We need to reduce the unbelievable bottle neck on the Boone Bridge going south - especially from 3:00-7:00 p.m. Property owners that live on the south side of the bridge, that pay taxes to the City and County should benefit from this bridge. Pedestrian and bicycle use will be limited to good weather and it makes little sense to have a pedestrian/bicycle bridge when there are not adequate trail systems to tie into on both sides to handle the projected use numbers.
191	Cost needs to be primary consideration.
197	N/A
199	This is a horrible project and citizens of Wilsonville don't want to spend $54 on a useless project
200	We don't want a bridge. Please put this to a vote before wasting any more money.
201	I would like to see the designs in place with the current bridges to help make a better choice. I prefer the lower river and bank impact of the suspension and cable designs though I suspect that the girder or truss may look better with the existing bridges.
202	Project decision makers should know that it's time to re-evaluate this project. The #1 project we need to be putting our efforts & funds towards is addressing the internal traffic issues we have now. Find a way to further engage at the state level, working with ODOT to address this issue. An extra bridge invites more in next to traffic continuing to grow. A bike pedestrian bridge will not be q standalone fix for I-5...it will take more focus than that.
204	Love the bridge idea, but go with least cost
205	While a lovelier bridge type would be important if located in a central location, this location is at the border between urban and rural and is primarily functional. We should save our aesthetic dollars for the urban core.
206	The option to have voters VOTE on if they want a bridge and pay for this bridge Option to have "No Bridge" on a survey

210	Please make sure the new bridge can resolve the lack of safe bike, ped, skate access across the river. Active mode users currently need to detour at least 15 miles to safely get south of the river. A safer bridge crossing would be a benefit to tourism as well as local users.
223	It's important to make the bridge a place unto itself and not limit it to a way to cross the river. It also says something to people crossing the neighboring bridge for I-5 if this bridge is basic or plain versus something more inspiring.
224	The tied-arch bridge is by far the most attractive bridge option.
225	Make it beautiful please! Can we get a cable stayed bridge where the cables from each tower extend all the way to the other side, and thus crisscross each other like the spokes on a bike wheel?
227	Portland/statewide pedestrian and bicycle committees
228	How wide will the bridge be?
229	Consider this as a marquee project to bring other investments, infrastructure improvement, and business. It should be a marquee bridge to kick start other improvement!
231	A steel girder bridge with a roof and walls that mimic the appearance of a wooden covered bridge, with open sides would fit the environment the best, though at a much higher cost.
236	Given this will be the only non-freeway bridge for 30 miles along the Willamette, I think it will very much be a different bridge for many bicyclists, runners, and walkers. Therefore, I believe a very striking design should be called for, in order to create a strong sense of place.
238	Build the least expensive, quickest to completion, and structurally sound bridge. Stop wasting time.
241	Don't build one until Boone Bridge is widened. Spend the money there.
242	To a degree the design should be unobtrusive, but its decision makers will know that it should also fit in with the other structures around it, and the other bridges in the area. A modern/fancy (e.g. cable-stayed bridge) approach would not fit in with other bridges in the area as well as a truss bridge would, etc.

247	All of these meet the needed function from a user-experience. I believe schedule (or certainty of schedule) and mitigating long term impacts to the river bed should be most important in deciding a scheme.
249	This bridge should really be considered for emergency use first and foremost. Recreational use of the bridge in my opinion will be limited by lack of activities on south side of river. Limiting the cost of the bridge should be the foremost concern.
250	Aesthetics should be secondary to costs, build duration and environmental impact. Great survey, very informative. Thank you.
251	Conde McCullough would favor the suspension bridge. In fact, in 1940 he wrote the definitive analysis of short span bridges of the type, Technical Bulletin No. 13, Oregon State Highway Department: "Rational Design Methods for Short-span Suspension Bridges for Modern Highway Loadings." Then he built some in Central America for the Pan American Highway. "Mac's" thesis is subtle. In short suspension bridges the stiffened deck acts as a bridge-within-a-bridge and so does double duty, resolving primary loads to the piers as well as providing necessary local stiffening. This results in a very efficient structure. Your suspension design is by far the lightest, least intrusive, and most aesthetic of the five. It has no piers in the river, unlike the truss and the girder designs. The tied arch also has no in-river piers but is overbearing and dominates the site. The cable-stay, with its great towers and huge "fans" is even worse. After all, the bridge is primarily for pedestrians and cyclists, and should be light and unobtrusive. McCullough's "Modern Highway Loadings" could be adjusted to reflect those different kinds of loads. James B. Lee 6016 S. E. Mitchell Street Portland, Or 97206 503 771 6128 cadwal@macforcego.com
255	Be sure when people get to the Marina there is somewhere for them to go.... right now, Butteville is not equipped to handle mom's with strollers, etc. - it is dangerous, people drive Fast around the Marina, and it has NO shoulder. I live where all these people will be directed too, and while the design is important - the ramifications are a scary, scary thought.
256	Any of the selected bridge types will be greatly appreciated by trail users, but if selecting a more expensive bridge type means less trails, I think I would much prefer a simple bridge with a larger trail network.
257	Whichever design is the most seismically resilient is the one which should ultimately be used. Ideally, the bridge should offer scenic views and have viewing platforms for people to rest and photo document the views without interrupting the those commuting across the bridge.

258	Make it visually aesthetic. The Marquam Bridge is an eyesore in Portland. This area is beautiful, and the bridge should be as well!
265	Steel Girder Bridge - Best alternative to carry additional utilities which could help support the cost of the project. Unfortunately, three piers in the water will be a significant short as well as long term impact to navigation on the water. Aesthetics of the bridge types are affected by the proximity of the railroad bridge. It would be nice to see the alternatives advanced with the background of the railroad bridge to appreciate the compatibility or not of the alternatives.
268	Steel girder bridge - Bridge type provides the best opportunity of any of the bridge alternatives for utilities to help share in the cost of the project. Unfortunately, three piers in the water will have the highest construction/long term impacts to the navigable channel. Maintenance could also be a problem for drift or scour with proximity to the railroad bridge.
270	Make it look nice and not the most expensive.
272	One of the things I like best about the steel girder bridge is that these is nothing between you and everything around the bridge.
273	There's no discussion of seismic performance, are the costs in the tables for comparable performance? There is no discussion of maintenance costs? Which designs have low maintenance costs?
274	Based on user-experience in other places: the cable-stayed bridge is my first choice, and bridge suspension is my second.
276	Long term maintenance should also be considered in the decision matrix. i.e. corrosion issues, fastener replacement costs, ease of inspection, etc. I'm sure this was considered but was not presented here.
277	Thanks for the opportunity to comment. I know the steel girder is cheapest, but I think it's worth celebrating this desperately needed connection and excellent opportunity with an aesthetically-pleasing bridge. I think the suspension or cable-stayed options provide the nicest balance, not being as expensive (theoretically) as the arch bridge. Good luck!
278	I think it is important to keep piers out of the river channel. Flooding tends to break docks loose that float down river and there are several barges moored just up river from the bridge that could impact channel piers if they got loose. Not worth the risk in my opinion. I feel we should choose one of the first 2 options for this reason.

279	Lifespan of structures
281	Don't build anything which impedes river navigation. Keep the footings/pilings out of the Willamette River.
282	The steel girder design is the least visually intrusive and most cost-effective design. This seems like a win all the way around.
283	The Oregon Coast is known for beautiful bridges. An aesthetically pleasing bridge into Wilsonville would leverage that association. A steel girder bridge is acceptable; it isn't beautiful, but it would at least echo the I5 Boones Bridge and not be unattractive. The only design that I find downright ugly is the steel truss bridge. The steel bridge in Portland is lovable because it looks like an industrial relic but making a *new* bridge look like that would be a shame.
286	Always easy to weigh in on something when it's not your money. That said, it's not every day a large span bridge gets built. Personally, I think the design and overall experience should have at least have a high consideration, over the overall cost of the project. If it's affordable but ugly, we're all going to be looking at an ugly bridge for a LONG time.
287	They all look nice.
289	Width of bridge is not specified. I'm assuming they would all be the same.
295	As there has been no discussion around the possible ways in which the community/region can make the most use of the bridge and we can make it work for us beyond just providing a means across the river (a 'bridge') - it seems that some really creative, beneficial thoughts could be added to this discussion if we don't get the horse before the cart. The current approach seems to only want to do things the easiest way. This eliminates a real effort to utilize imagination and creativity, so we can make the MOST mileage with all the money that will go into this bridge. Limiting the discussion to just TYPE severely limits the potential benefits the bridge could offer us! For example: the choice of a building type would be hugely influenced if you FIRST decide you want a "green" building. A green building is built differently than a regular building 'type', but that option would be eliminated if you don't decide from the outset you want a green building. So, without the discussion of how we can use the bridge as a "tool" for our benefit and how to make the most of this fantastic opportunity, I think we are going to limit the benefits the bridge can offer. This will only add ammunition to the detractors of the bridge.
296	Bridges that have complete, open views of sunlight are the best. They "give" lighter and space.

305	Putting time and money into this project is irresponsible when there are other more pressing issues in Wilsonville, especially traffic. This bridge does nothing to alleviate traffic concerns. This bridge will negatively impact the Old Town neighborhood in many ways.
306	This is a waste of money with what needs to be addressed in the city. Traffic is horrendous and is only going to get worse with the Frog Pond development and with people moving south to live (more affordable). Address what the citizens who live here now want to have happen not what was in a survey years ago.
309	No reason to impact river if option exist to not do so, therefore two options should not be considered.
311	Make finding the approaches easy to find. (signage, pavement markings). It would also be great to have lighting for when it is no daylight.
314	I really hope we can keep out of the water with this project.
316	Please use rails that you can see through (not solid concrete) in order to maximize the river view for users.

7.What additional questions do you have?

ResponseID	Response
17	Have/has any thought been given to utilizing the bridge for golf cart use(s) from residents of Charbonneau. Coupled with paths or roadway special use lanes and a revision of the Wilsonville City code, many folks could utilize the new span for getting to town for shopping. NOTE: this would greatly improve the safety of I-5 northbound @ Butteville road on-ramp from elderly slow pokes (a stereotype) from Charbonneau.
18	Don't need this.... just going to cost us tax payers a heck of a lot of money. We pay enough for taxes ... city, state and nation.
25	How do you measure the cost-benefit ratio for the intended use?
27	How are you paying for this bridge? What is the projected use of the bridge by the different users - pedestrians, bicyclists, etc.? Will this in any way help congestion on I-5 and if so to what is the projected impact?

28	Can the main span pier locations of the suspension and cable stayed alternatives be moved in to match the arch pier locations? This would better balance the main spans and back spans and reduce uplift at the back-span piers. As currently shown, both alternatives require "extra" length of bridge to be built on the north end than is needed for the path alignment. This seems a bit inefficient.
29	I am wondering why a lower or upper deck on the existing I5 bridge with a spiral approach on either side is not being considered. This is being used in many locations in Austria and other European countries with well-established bike routes. It would seem to be the least expensive alternative.
34	Not sure why more expensive, and longer construction duration choices are even in the mix. 2 years is a long time. We shouldn't be looking at anything that takes longer than 2 years.
38	By the terminology of grading within Boones Ferry Park and re-grading in the river banks, what does that entail in the environmental impact of construction of any of these types of bridges? Considering the concerns with climate change along with non-sustainable energy sources and the impact on our environment, were more sustainable options for the bridge plans considered in the decision process (i.e. Solar panels to power bridge lighting).
39	This bridge will be nice to have, but it seems more like a red herring issue to distract those of us who live south of the river and are in desperate need of a way to get to and from the city of Wilsonville during heavy traffic hours. Several months ago, ODOT showed up at a meeting in Charbonneau to discuss the widening/rehab of the Boone Bridge, only to tell us that MAYBE such a project would start in 2028. I've lived and driven in many metro areas around the U.S. I must tell you that Portland traffic is one of the worse I've experienced. And I don't see much being done about it. Instead of asking us questions about this project to check the box that you performed community involvement, it would be better to spend time convincing ODOT that we need to reduce Boone Bridge congestion soon.
43	Best- and worst-case timeline to completion?
49	When will construction starts?
56	Why are you wasting our tax dollars on this? Don't you have more important things to do? Also, we will vote you out of office if you go along with this.
59	What is the cost to upgrade the I5 bridge seismically? What is the budget cost of this bridge? Why is I5 bridge not being upgraded first? 6

	lanes of traffic versus one lane does not make a lot of sense. If it is primary use is a pedestrian and bicycle bridge ODOT money should not fund this project. Use our tax money better!
64	Why would we waste our money on something like this? Pay attention to what Wilsonville residents want
69	What kind of cost are we really talking about, and what are the likely funding sources?
72	How can we stop the construction of this bridge?
73	When will this finally happen?
74	When will the citizens of Wilsonville have a chance to vote on whether we have a bridge or not? Or do we use the upcoming elections to vote in candidates who will listen to us?
75	Not a question. I believe this bridge is a great idea. My wife and I love biking around Wilsonville. However, I do not believe this project should proceed until I-5 south from Wilsonville to the Hubbard turnoff has the necessary 4 lanes needed to reduce congestion. At this point nothing is more important than that.
80	Why are you considering a new bridge instead of attaching ped/cycle walkway extension(s) to the existing I-5 bridge?
82	What are the plans to widen the car bridge beyond adding a new one lane access to merge at Wilsonville Road? The current bridge is too narrow and inadequate for current traffic need.
85	Can this new bridge be used to alleviate I-5 and surface street congestion around Wilsonville? Will it make the area around Fred Meyer even worse?
90	How much $$$ for how long?
91	Where is the option that we do not build it?
94	The community should be allowed to vote on this misguided, special interest project.
98	I would prefer the money be spent on better roads in order to alleviate traffic problems that exist. The new bridge does nothing for the traffic congestion which will only get worse as the population increases due to the addition of new homes. It would be nice to be able to afford the

	bridge you are proposing; however, we don't seem to have enough dollars to fund both. I feel the money could be better spent on a plan that helps the traffic situation.
106	If the steel girder bridge seems to be the most cost-efficient for this project, then why is it taking so long for the decision to be made and the work to begin? The City of Wilsonville needs to understand that those of us who reside in the Charbonneau District are in constant danger for the lack of response time from Emergency Services. The money would be better spent to purchase a piece of land with Tualatin Valley Fire & Rescue on a joint-basis on the South side off the river for better fire and medical response. Charbonneau does not receive its fair share of the allocation of money from the City of Wilsonville for services and with the increase in traffic, the response time is only going to get worse. Time for the City to step-up to the plate for Charbonneau! They don't seem to mind taking our tax $.
120	What is range of time for permitting process?
121	nothing
127	Bridgehead design, alignment, and wayfinding will have an important impact on the user experience; please consider carefully.
130	Is there a report that documents how this construction would affect water quality, and native fish species?
131	Will the bridge have areas to stop and look out over the river off the main path? What will the lighting be like above and below the bridge? How does this bridge connect in with the new plan for Boones Ferry Park?
132	Why are you considering the highest cost options? How is the bridge funded? Why are you not combining the use of this bridge in a widening of the Boone Bridge (1-5) which is a bottleneck for vehicular traffic?
133	How do these bridge options rate under our current knowledge of earthquake building sturdiness?
154	Where will the funds for construction come from? When will we know if it will be funded?
161	Why are we doing this when the priority should be upgrade and widening the Boone bridge? What is the bicycle count for the area per month? I do not see very many bikes on our streets outside neighborhood kids.

173	Bridge cost and available budget should be developed before final selection. There are many examples of proposed bridges must be redesigned after bidding because they were unaffordable. That is a waste of money on the initial design.
183	How many people will use any bridge on a Tuesday in February? This whole thing is a waste of money!!!!!!!!!!
186	Thank you for asking for community input!
187	What happens to people when they walk across the bridge? Will they just walk along Butteville Rd. (dangerous)?
194	Will this be constructed when I-5 is widen. It appears we have a greater urgency with traffic flow than we do with people out on a bike ride. Please tell us there will be room left to widen I5. Or is this Another Oregon example of planning...😳🤦
197	N/A
199	Why are we wasting money on something like this when we could be advocating for Boone Bridge
200	Why are we wasting money on a bridge that the majority doesn't want? Let bicyclists pay for it.
202	When will this be up for a public vote again?
206	NO BRIDGE without A VOTE by RESIDENTS
207	For Emergency will care be able to access if the Boones bridge has a major issue?
210	Will the new bridge include routing through Wilsonville and south so there can finally be a safe alternative for people cycling, walking, skating and scooting south of the metro area?
228	How will I get to this bridge if there are no safe and separated paths leading from Portland?
241	Fix the I-5 corridor 1st.
242	I didn't see anywhere about seismic stability, I'm sure that thought has gone into that, but it would be nice to know which designs are most stable, considering we are due for significant activity.

257	Will the bridge be ADA compliant and be designed at no greater of an incline than 5% grade?
265	Do the piers for the steel girder and steel truss alternatives line up with the railroad bridge piers? To many piers in the water for navigation around the marina and maintenance (drift/scour) concerns if not. Is the new bridge alignment far enough away from the existing railroad bridge so no need to worry about seismic design/construction issues of the railroad bridge? Is the railroad bridge on spread footings or pile supported? May impact construction decisions for new bridge.
266	How many Oregon jobs are created short term/long term. Engineers, architects, construction, logistics etc.? Per each design. Please and thank you :)
268	Do the bridge piers for the steel girder and steel truss bridge alternatives line up with the existing railroad bridge? If not too much congestion in the channel and impacts to the marina area. Is the existing railroad bridge on spread footings or piling? Railroad bridge likely not meeting current seismic code design. Is the proposed new alignment far enough away not to be impacted by these design/construction constraints?
273	What road and trail development are envisioned on the South side of the river? The current Southern terminus road is not bicycle or pedestrian friendly.
277	Has there been substantial study of other impacts beyond the floodway? I.e., any impacts to habitat for fauna etc.? Not sure if we're there yet in the process. Also, I appreciate highlighting the 100-year floodplain, but with these being more frequent and the risk of 500- or 1000-year floods emerging in the region, have these been studied at all? Finally, my assumption is that these would all be built to be seismically sound? All new infrastructure should meet this requirement, especially if major freeway bridges, such as the I-5 Willamette crossing in Wilsonville as an example, are out for extended periods of time after a large earthquake.
279	How wide will it be?
289	schedule for implementing various bridge
294	Will the bridge be made available for emergency vehicle use?
295	The offered bridge types look like samples right out of a text book. It's hard to believe that these are the only 'types' available. Nothing is offered that does not exist around the region already - thus showing no effort towards making this bridge something special. The original design that was quickly drawn and thrown together but what was available

	when the $1.5 million current grant was given had a sweeping "S" type design to the bridge - showing some creativity and effort to make the design 'type' work for the community rather than just be text book designs off page 127 of the text book for "Bridge Building 101."
296	Will more Oregon White Oak trees be planted near the bridge?
305	Will this project be put to the voters before any building commences? It is highly doubtful that most voters would be for this project. Proceeding without voter input would be very foolhardy and show zero concern for the vast amount of negative input from Wilsonville constituents that has been coming in as more and more people learn about it.
306	Why would you spend money on this project when it only affects a small proportion of the community? This will help people who don't live here and that shouldn't be the priority.

9.How do you envision yourself using the bridge?

Other - Write In	Count
Access the marina/boat dock	1
As an alternative to get home should there be a catastrophic failure of the Boone bridge.	1
Bike or walk to Wilsonville from my home	1
Connection to Canby	1
Emergency connection if Boone bridge shut down	1
Family bike camping to Champoeg State Park	1
Family walks, bike fun	1
For sitting/standing and I would like to visit Charbonneau	1
Having emergency vehicles access south of the river	1
I just heard of these trails. Now I must go explore. :)	1
I skateboard between Portland and Salem	1

I used to commute to work by exiting off the charbeanu exit across I5 to the Wilsonville exit to get to Tigard. It was scary and when they took the shoulder off the bridge to make another lane for the Wilsonville exit that was not a viable option, so I stopped commuting	1
If I call 911 the emergency responders won't be stuck in 1-5 traffic	1
If it is built, I'd probably use it and yet there are much greater transportation needs.	1
If it was closer, I would walk to town. But it is a good 3 miles from my house, so I'm not sure how I would use it.	1
Inviting visitors to bike or walk across the Willamette	1
It's going to ruin this neighborhood with traffic and possibly inviting wrong crowd	1
Maybe a walk a couple times a year.	1
No need for it. It will cause to many traffic headaches on Butteville with all the new bikers using it. It already shows our cars down because there is no bike lane or shoulder for the bikers to ride on. But no one cares about that. It will take some biker getting hit by a car and killed before you realize what's going on. There are people on your committee as have spoken to that didn't even realize there are houses over here.	1
Picking up garbage, calling the police with all the increased crime, vandalism, malicious mischief and vagrancy it will bring.	1
Ride my bike to Fred Meyer for shopping	1
Ride to WV for dinner or shopping - golf cart or bike	1
There is NO safe way to get from my home to the bridge. Butteville road is too narrow from I-5 to the access point of foot bridge.	1
To connect with shopping	1
To get to the grocery store without having to deal with the horrific traffic	1
Total waste of money.	1
Visit family on south side of river	1

Visiting family in Charbonneau	1
Would bike/walk to a job if I eventually worked south.	1
car lane	1
emergency access via walking to my home in case of earthquake	1
enjoy aesthetically	1
no one will use it in the winter	1
shopping, restaurants in downtown Wilsonville	1
to draw tourists/money to the area	1
to visit family	1
Totals	36

French Prairie Bridge Project Task Force
Meeting #3

Meeting Summary
Wednesday, April 12, 2018
6:00– 9:00 PM

Wilsonville City Hall
29799 SW Town Center Loop E, Wilsonville, OR
Willamette River Rooms I & II

Members Present
Co-Chairs Commission Chair Jim Bernard, City Councilor Susie Stevens
Jeremy Appt, Heidi Bell, Steve Benson, Steve Chinn, Andrew Harvey, Tony Holt, Pete Ihrig, Douglas Muench, Samara Phelps, Patricia Rehberg, Leann Scotch, Ryan Sparks, Simon Springall, David Stead, Steven Van Wechel

Members Unable to Attend
Blake Arnold, Karen Houston, Charlotte Lehan, Michelle Ripple, Brian Sherrard, Gary Wappes

Project Management Team/ Staff
Bob Goodrich, OBEC Consulting Engineers; Reem Khaki, Oregon Department of Transportation (ODOT); Gail Curtis, Oregon Department of Transportation (ODOT); Zach Weigel, City of Wilsonville; Nancy Kraushaar, City of Wilsonville; Kirstin Greene, Enviroissues; Megan Burns, Enviroissues

Community Members/Public
Cory Buchanan, Michelle Demsey, Bill Hall, Jim Hoffman, Monica Keenan, David Leckey, Kris McVay, Eric Winters, Pat Wolfram

Conversation is summarized by agenda item below.

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1. Welcome and Meeting Purpose

Co-Chairs Councilor Susie Stevens and County Chair Jim Bernard opened the meeting and began introductions.

Meeting Objectives:

City Project Manager Zach Weigel welcomed committee members. Facilitator Kirstin Greene asked members to introduce themselves and briefly describe their role.

Kirstin announced that the meeting is scheduled until 9:00pm. Kirstin informed the group that they were welcome to participate on their area of expertise, additionally that the intention of the meeting was to reach a consensus on the PMT scoring and for a recommendation to be formed for the City Council.

2. Project Updates

Zach Weigel, City of Wilsonville and Project Manager updated the Task Force some activities conducted by the project team over the last 11 months:

- The project team has not conducted the archaeological work yet as the Federal Highway Administration (FHWA), Oregon Department of Transportation (ODOT) and the City have since reassessed the environmental classification for the project. Previously, the project team laid out a process that would locate and design the bridge to fit within a categorical exclusion under the National Environmental Policy act. A categorical exclusion (CE) would only require an archaeological assessment of the selected alignment. The results of the technical reports indicate that there might be environmental risks associated with this project. Accordingly, FHWA, ODOT, and the City agreed that an increased level of permitting is necessary to reduce future environmental risk to the project. As a result, an Environmental Assessment on the preferred alignment needs to take place.
- Since the last Task Force Meeting, team members also have conducted stakeholder meetings to gather input from Genesee & Wyoming Railroad, emergency services providers and the Marine Board.
- Project team members have accordingly adjusted the schedule about six months later than what was envisioned. The bridge type selection process will begin this summer.
- Zach reminded participants of the Task Force's chartered goals: to select a preferred bridge alignment and a preferred bridge type. He reminded Task Force members of the three bridge alignments under consideration.

A community member, asked a clarifying question about when the archaeological digs would begin. Zach reminded Steven that an Environmental Assessment would be happening instead after the preferred alignment and bridge type were selected. The assessments would be conducted at that time.

Kirstin Greene then introduced voting blocs as a tool for consensus for a bridge location decision. The blocks are three sided, 1 is green and means comfortable with the decision, 2 is yellow means not fully comfortable with the decision, and 3 is red and means uncomfortable with the decision and is a consensus block. She explained that tonight's recommendation would go to City Council in May.

3. Public Comment

<u>Pat Woolfram lives on Butteville Road</u>

In reference to a planned corridor, I am wondering if this corridor will connect Charbonneau and Champoeg State Park. As a biker, it would be a nice addition.

Zach responded that there are regional bicycle and pedestrian trails and connections that have been identified as needs by Metro's Active Transportation Plan and Clackamas County's Transportation Systems Plan, but no exact routes have been determined, just generally planned.

Michelle Demsey, lives at the very end of Boones Ferry Road
Old town is changing quickly. I have had to call the police twice in the last month; the nonemergency line is on my speed dial. I have always known the Alignment 1 is the preferred route. There are increased vagrants, one lit a fire behind our garage, one spray painted our garage door, more people are on the railroad tracks that go through our backyard. When you look at the parks in Wilsonville, they all have an entrance a gate that can close when needed and can stop cars if they want. We are virtually inviting the entire region into our neighborhood with this alignment. Because it is not regulated with a gate, people will be parking throughout our neighborhood, and who knows what they're doing down there. It is concerning and frightening and we really hope that you think about that as you plan this project. It impacts us and not in a good way.

Bill Hall, SW Country View Court N in Charbonneau
I have been riding my bike and hiking around and I am concerned a little bit about the connections. So far, from the alternative design it doesn't get into the connections specifics. The south end connections have the lowest rating. Anyone from Charbonneau will use any of the alternatives. It is important to consider off road connections for safety issues., and It would be nice to know those connections for the alternatives ahead of a decision and ahead of an Environmental Assessment.

Eric Winters SW Magnolia Ave
I would like to reiterate everything Michelle said about the fears from Old Town residents, I've been one for about 12 years. It seems like regardless of what we want or not, this project will move forward. The changes to Old Town that have happened in the last ten years have impacted our ability to drive around and leave from or return to Old Town depending on the time of day. Boones Ferry is very crowded. We are stuck in our neighborhood because there is a bike lane that prevents us from taking right turns, and the bike lane is completely unused. I want the alignment that would have the least impact on Boones Ferry, which is alignment 3. Perhaps you can redirect bike traffic along a road that doesn't clog up Boones Ferry.

Kirstin thanked participants for their comments. She introduced Bob Goodrich who would lead the bridge alternative scoring discussion.

4. Bridge Alternative Scoring Review

Bob Goodrich, consulting team project manager with OBEC consulting engineers presented the evaluation criteria and scoring proposed by the Technical Advisory Committee (TAC). These criteria were established by the Task Force and informed by public meetings. They were solidified during the previous TAC meeting. The results are part of Appendix A of the Evaluation Criteria report memo.

The project team met with the technical advisory committee 6 weeks ago to formalize the scoring for each alignment. He noted that this scoring and the scores settled on tonight will all be given to city council for alignment recommendation.

He then touched upon each evaluation criteria (A1 thru F4) and the rankings for each of the three alignments (W1 thru W3). Task Force discussion follows.

Category A: Connectivity and Safety scoring

- Category A1
    - Simon Springall asked if there is an alignment that goes toward Champoeg because it

is currently a 4-mile walk without sidewalks.
    - Zach responds that he does not believe there is a pedestrian connection to the west, but there is a bicycle connection via Butteville Road.
    - Bob added that there is a plan to add wider shoulders to Butteville Road to accommodate cycling on the road, but no sidewalks. The scoring is ranked higher the closer the bridge connection is to Champoeg.
    - Heidi asked a clarifying question about whether the shoulder widening is happening in both Clackamas and Marion Counties.
        - Zach responded that Marion County does not have a plan for that area yet. The two counties have not coordinated transportation plans. When Marion County updates their transportation plan, there will be more coordination and more focus on the border between Marion and Clackamas Counties.
        - Zach added that Marion County Staff are serving on the TAC and are aware of the need to coordinate transportation planning and how this project may affect their roadways in the future.
  - Steven Chinn asked if it is against the law for pedestrians to walk in bike paths, suggesting that if it isn't then when the shoulders are widened, and a bike path is put in then pedestrians could use it, too.
- Category A3
  - Tony Holt wanted clarification regarding 'direct connections,' wondering if the scoring was based on one alignment being closer than the others. Tony also asked why Alignment W1 is scored a 10 and Alignment W2 is only scored a six.
    - Bob clarified that the Ice Age Tonquin trail directly connects right into Alignment W1. It comes down Boones Ferry road and would be a direct connection onto the bridge, whereas Alignments W2 and W3 would force the user to navigate through the park system.
    - Kirstin mentioned that there are sometimes minor differences in the scoring that reflect more heavily. This is one of the categories that the Task Force assigned a 20% greater importance, so minor differences have a greater weight than other sections.

The Task Force then voted unanimously to keep the scoring for the entire category A the same.

- Leann Scotch noted that avid cyclists enjoy spending money on their bikes, drinking coffee and enjoying beers. This economic opportunity should be a consideration when building a regional trail; trails connect to communities and activities.
- Simon Springall is very excited about the Tonquin Trail, which connects to the Tualatin National Wildlife Refuge. The trail is good for pedestrians and bikes simultaneously and comfortably. The trail is being planned for connection into old town. Simon is invested in the bridge because, to Simon, the bridge is a real essential part of the trail; the whole point of this bridge is to connect the regional trail.
- Steve Chinn asked in jest if the county is going to build a brewery and a Starbucks.
- Steve Benson spoke to the Parks and Rec's interest in the bridge, noting that they are currently in the process of developing the Boones Ferry Park Master Plan. The current trails go under the I-5 Bridge and up a steep hill to overlook the sewer plant. That trail is changing; it will likely traverse along the river instead. The exact alignment is not in place yet, but there are three potential plans that will likely meld into one.

Category B Emergency Access scoring

- Steven Van Wechel mentioned that although alignment W1 has minor parking, it may also provide shading for parking, which he noted as a bonus.
- Patricia Rehberg asked if emergency vehicles would use this bridge over the Boone Bridge.
    - Zach responded that emergency vehicles would only use this bridge if I-5 is not passable. If there were a major earthquake, this bridge would be designed to current earthquake standards and would serve as the main passable route for some time.
    - Jeremy Appt had questions regarding first and second responders and if the new bridge would be traffic controlled. He also wondered which authority this bridge falls under in an emergency.
        - Bob and Zach responded that the authority of the bridge is to be determined. Dependent on funding sources and how agreements work out between different agencies, the answer could go a few different ways.
    - Steve Benson asked how the emergency system would work. Steve wondered if there would be stoplights at either end for north/south traffic. Steve was concerned about a communication breakdown should multiple vehicles try to cross a one-lane bridge from both directions.
        - Bob responded that those are details the team will have to take up during the design progresses. As in every situation, emergency vehicles would communicate with each other. In an emergency response situation, there are typically only a handful of first responders and it is unlikely that secondary responders would ever use the bridge.
        - Pete Ihrig pointed out that emergency vehicles would have procedures in place to handle use of the bridge.

The Task Force then voted unanimously to keep the scoring for the entire category B the same.

Category C Environmental Impacts scoring

There were not any questions or comments on this category. Task Force members voted unanimously to keep the scoring the same.

Category D Compatibility with Recreational Goals scoring

- Category D1
    - Andrew Harvey asked how often the train travels through the project area and what the noise impacts are.
        - Steven Chinn replied that the train travels through usually four times a day at various times. Steven also noted that wherever there is a train there will be some noise impact but pointed out that the freeway noise is constant and has a greater negative impact.
        - Councilor Susie Stevens noted the sightline impact of the bridge if it sat too close to the railroad bridge and obstructed the upstream view of the Willamette River. She wants the design to fit and capitalize on the aesthetic of the area.
        - Pete Ihrig emphasized that the train would be sporadic and only four times a day, while freeway noise is constant.
            - Zach reminded folks about the tour given during the last Task Force

meeting where they all walked down to alignment 3 noticed how significant the freeway noise was even standing below I-5. There would be an even worse constant drone of traffic if the bridge were to be at freeway level.
        - Steven Van Wechel wanted the timing of noise to be considered.
- Category D2
    - Councilor Susie Stevens asked if the question of alignment W2 for category D2 played into the Boones Ferry Master Plan.
        - Steven Benson from Parks and Recreation said that the bridge alignment would impact the master plan. Alignment W2 would split the park in half and would require the Parks department to adjust the Master Plan. When a bridge creates a tunnel, the underside of the bridges is dark and can limit recreation, but there are also options for transforming the covered area into something usable.
    - Simon Springall pointed out that because of the slope, the bridge would land steep slopes. The space under the bridge could connect the two sides of the park.
        - Steve responded that creating a usable space under the bridge wouldn't be impossible, mentioning basketball courts as an example, but pointed out that once there is a bridge, nothing big can be built that might encroach on the bridge.
- Category D3
    - Councilor Susie Stevens wondered how the Technical Advisory Committee defined 'impact' on marina parking. She wondered if that meant that parking wouldn't be able to be expanded, or if that implied that parking would be eliminated.
        - Bob responded that it is expected that some parking will be eliminated, but that the team is not certain yet what that looks like.
        - Zach added that this scoring captures future impacts to the area because when you put a bridge in this area, it limits what you can do with the area. For example, once the bridge is built, a building cannot be placed there.
            - Susie clarified that impacts could be defined as 'future impacts'.
    - Steve Chinn felt that the scoring was backwards. Steve felt that alignment W1 should be scored an 8 and alignment W3 should be scored a 3, noting that alignment W2 is the worst for the marina. The two lowest scoring alignments would significantly impact the maintenance area for the marina and the facility would be unusable. Steve felt that any alignment besides alignment W1 would have no flexibility for recreational uses.
        - Bob asked whether Steve was saying that alignment W3 should be scored lower because it is not near the marina and couldn't be a part of the recreational use for someone on the bridge.
            - Steve said that was correct and that there would be no recreational use there because it is a wetland and has many more trees that would have to be removed compared to the other alignments.
        - Chair Bernard also felt that the scoring is wrong. Although alignment W3 is scored the lowest, Chair Bernard thought that alignment W2 has the greatest impact on the marina by far. Chair Bernard also wanted to see alignment W1 scoring to be lowered.
        - Steve Benson brought up that category D2 talks about the recreational uses on the north side of the river. Regardless of where the bridge is placed, it

affects how the master plan comes out. A bridge landing on the north side only affects boating and cycling. Additionally, marina recreational uses should not be impacted. Steve Benson felt that category D2 is more important than category D3.

- Bob clarified the Technical Advisory Committee's reasoning for the scoring, pointing out that the recreational connections were in regards to how the position of each alignment preclude or enhance the ability of the Marina to continue to be a recreational facility, and not in regards to the ability of someone using the bridge to access the recreational amenities offered by the Marina. The main question was about whether the Marina would be able to operate differently in the future if it wanted should the bridge be built.

- Heidi Bell asked if a Marina representative served on any of the boards and asked what they prefer.
  - County Chair Jim Bernard stated that Clackamas County owns the marina and reiterated that alignment W2 has the greatest impact.
  - Zach added that County Parks & Recreation staff sit on the TAC.
- Steve Van Wechel clarified whether alignment W1 is being counted down because of the loss of a parking space or two and if alignment W2 is marked up because of the loss of existing buildings. Steve wondered if a parking space was valued higher than existing buildings.
  - Bob said that that if that area was ever envisioned to be different than a parking lot, then options would be severely limited with certain alignments. For alignment W2, parking was valued higher because over the course of the past year on this project, parking concerns have been a major concern of Clackamas County, the community and the TAC.
    - Steve asked if future potential use is more important than current use of the building.
    - Zach responded that alignment W2 would go over a boat storage yard. The TAC decided that the parking impact would be greater than the boat storage area impact because the boat storage building could still possibly be used with alignment W2.

- Steven Chinn pointed out that alignment W1 doesn't impact the Marina because it is all on Burlington Northern property.
- Tony Holt expressed concern over the lack of attention being paid the potential parking impacts. Tony has noticed many people driving to areas around Charbonneau to park and ride their bikes and because of this feels that parking should be a real consideration.
  - Zach responded that parking has always been a major consideration for the project team and the TAC, pointing out that all three alignments will have the same parking needs and issues. How parking works is more of a design phase problem to tackle and will be given the attention it deserves once an alignment and bridge type has been chosen.
- Simon Springall hoped that if there is a bridge, then people will use parking on their own side of the river.
  - Tony Holt pointed out that the south side parking would still be impacted.

        - Douglas Muench emphasized how large of a concern parking is for Old Town Neighborhood Association and recommended the advertisement of public transportation including SMART and WES options as part of an overall parking mitigation strategy.
        - Patricia Rehberg emphasized Douglas' recommendations and noted that more people parking and shopping in Wilsonville is an economic opportunity for the community.
    - Kirstin then requested that the project team briefly talk about the stages of bridge design to understand when parking concerns can legitimately be addressed.
        - Bob said that parking considerations would take place during the NEPA process - the Environmental Assessment would have to look at potential parking areas as part of the bridge permitting process.
    - Leann Scotch encouraged the Task Force to go to Tualatin and see how the bridge that was built there ties together Tigard and Tualatin. Leann emphasized the importance of experiencing the look and feel of the bridge as a connectivity measure and how much it has offered the region, as a comparison to what this bridge could do for Wilsonville.
    - Pete Ihrig noted that along the Springwater, the Trolley Trail, and other trails in the region, people don't park in one spot to use the trails, they park in dispersed areas along the trail. Pete mentioned that while a parking strategy in Wilsonville is important, there would be a lot of riders who will not be coming to the marina and Wilsonville to use the bridge.
    - Steve Chinn did not feel that south side parking would be an issue and noted that parking lots defile the natural beauty of the area. Steve did not feel that adding additional parking is an issue or necessity.
    - Patricia Rehberg recommended that the project team put restrooms where they want people to park.

Kirstin had the Task Force vote on Chair Bernard's recommendation for scoring change for Category D3 alignment W1 to be changed from a 3 to an 8, alignment W2 to be changed from a 5 to a 3, and alignment W3 to be changed from an 8 to a 5.

- Members discussed the fact that the only land available for parking belonging to ODOT. ODOT Is not inclined to sell it because it is being put aside for an I-5 freeway expansion project. The committee tied on a vote to change the scoring. They then averaged the old and suggested scores for their final recommendation of:
    - alignment W1–6
    - alignment W2–3
    - alignment W3–6

Task Force members did not make any alterations for D4 scoring.

<u>Category E Compatibility with Existing Built Environment scoring</u>

- Category E4
    - Steven Van Wechel asked about the bridge alignment W2 going over the boat storage and if it had any impacts on that building.
        - Bob said that alignment W2 has a potential for that and pointed out that those impacts were captured in category E3.
    - Simon Springall asked if bridge alignment W3 would impact the widening of the

freeway, and that because it will, Simon recommended lowering the score for alignment W3.
    - Bob said that ODOT has expressed concern over alignment W3 and has already said that they will likely not give the project team the property to build alignment W3.
  - Andrew Harvey pointed out that an I-5 widening would put traffic closer to alignment W3, Andrew also recommended the score be lowered.
  - Steve Benson brought up that a score cannot be lowered to 0 because that would mean the alignment is impossible. The lowest you could score it is a 1.
    Zach pointed out that ODOT has several members on the TAC and that the TAC scoring reflected that theoretically the bridge and freeway widening could happen simultaneously because the area is so wide.

Task Force members agreed unanimously to lower Category E4 alignment W3 from a 5 to 1.

<u>Category F: Cost and Economic Impact scoring</u>

- Category F1
  - Simon Springall asked the project team to define the wall was in the context of the bridge.
    - Bob explained that retaining walls are used to transition from bridge spans to a fill ramp in areas of alignment where a wall costs less than a bridge or where fill needs to be contained to reduce impacts.
- Category F3
  - Pete Ihrig brought up the Opportunities and Constrains report from April 2017 and asked about the three fatal flaw issues that could potentially shut down the third alignment.
    - Bob responded that the BPA lines, identified as number 9, are on the west side of the railroad bridge. These transmission lines will not be impacted by alignment W1.
    - Zach addressed the zoning for exclusive farm use, identified as number 1. Since publishing the report, more conversations with the County planning department indicated there is a land use path forward for impacts to EFU land.
    - Steven Van Wechel gave an anecdote about bridgework in Eugene and how BPA had been partial funders for the bridges so that they could run power lines in the bridges themselves. Steven then suggested that Bonneville Power Administration be considered a potential funding opportunity. He then proposed that Category F3 alignment W1 be raised a point or two.
    - Pete then brought up number 17 which is the City's wastewater treatment plant outfall. Alignment W3 could conflict with this feature. Pete was concerned that would render alignment W3 impossible. Bob clarified it would not be impossible, would be notably more expensive and introduce additional complex to the project.
      - Kirstin pointed out that, based on current scoring, this alignment may be eliminated very shortly.
    - Heidi Bell recommend putting Public Private Partnerships up as a possibility for exploring funding opportunities.
    - Simon Springall asked if alignment W2 also had power lines and wondered if

alignment W2 had the same potential for carrying the lines as alignment W1.
    - Bob verified that there were PGE power lines potentially in conflict with both alignments.
- Steve Benson pointed out that alignment W3 has flexibility to potentially avoid conflicting with outfall pipe.
- Bob and Zach assured Task Force members these issues were no longer considered fatal flaws.

The Task Force agreed to change the scoring for Category F3 alignment W1 from a 5 to a 6, alignment W2 from a 4 to a 5, and alignment W3 to stay at a 1.

Kirstin asked for questions and comments from the Task Force before a final decision.

- Heidi Bell recommended the Council and staff to focus on traffic and pedestrian safety as the top priority, to be sure that there are safe connections for pedestrians and bicyclists to exit onto. Heidi also wanted the City to consider how they would work out ownership of the bridge; to make sure the police are patrolling the area and protecting the community. Heidi wants the City to consider whether the bridge would or should be open 24/7. Furthermore, Heidi wanted the City to remember that it would be beneficial for them to really work on how to connect the two sides of Wilsonville.
- Tony Holt was surprised by the total lack of explicit categories addressing safety.
    - Bob replied that safety was implicit in each of the subcategories for Category A, but also mentioned that perhaps those could have been called out specifically.
    - Steven Van Wechel clarified that the scores reflect both connectivity and safety even though safety is not mentioned.
        - Bob said that yes, the existing and future connections are created with safety in mind.
- Heidi Bell asked ODOT to talk about the I-5 improvement studies happening at the Donald Interchange.
    - Reem Khaki and Gail Curtis with ODOT noted that they were from Region 1; the Donald interchange is in Region 2. They would need to check.

Kirstin called for a final round of public Comment before the Task Force made their final recommendation to be passed on to City Council.

<u>Pat Woolfram</u>

I walk my dog on Butteville Road every day and have noticed that people only slow down because of a blind curve, at a place where there are no shoulders on the road. Pat recommends that if the project team plans to land people on that road, it needs to be widened or another safety measure needs to be put in place. Otherwise, it will be very dangerous.

- Simon Springall agreed with the community member and mentioned that the one benefit to alignment W3 is that it lands on the north side of Butteville Road so that no one must cross it to get to Charbonneau. If the future connection is made under the south end of the Boone Bridge, Charbonneau residents will have a direct connection and not need to cross Butteville Road.
- Steve Benson pointed out that it is possible to tunnel under Butteville Road for a bike or pedestrian path, which would be much better than going over the road.

As a closing comment, Steve recommended that alignment W1 be moved as far west as possible as to not impact the park.

Andrew Harvey asked if the project would need Right of Way from the railroad for alignment W1. Zach responded that the Railroad is open to it and that the project and the Railroad would have to enter in to an agreement.

Michelle Demsey
I am very concerned with losing the 100-year-old Orchard in Old Town. The Orchard is one of the few remaining green spaces left in the neighborhood/Old Town and is full of wildlife that the neighborhood considers an asset. The Orchard is important to residents.

- Steve Benson responded that in all iterations of the Parks Master Plan, the natural areas in Old Town are being taken into strong consideration to remain intact.

5. Recommendation for City Council

Task Force member unanimously recommended alignment W1.

6. Next Steps

Zach told the Task Force that the next public open house for the top four bridge types will be held in September, towards the end of the summer. Later into September and October the project team will host a Task Force meeting to narrow down the bridge types to two alternatives. In late fall and early winter, Task Force members will be asked to recommend a single bridge type. The project team will then initiate the Environmental Assessment period and cost estimates. After the Environmental Assessment is complete, the search for funding can begin.

7. Closing Comments

Co-Chairs Councilor Charlotte Lehan and County Chair Jim Bernard thanked Task Force and community members for coming and for their deliberation and guidance.

Zach reminded Task Force members that the project team will be presenting the Task Force and TAC recommendations for a preferred bridge alignment to the City Council at their meeting on May 21st.

Chair Bernard adjourned the meeting.

Appendix: Task Force and Public Comment Forms

Comments and suggestions:

1. High potential for impact to orchard is very troublesome. Old Town has lost the majority of its green space and loss of the orchard would be unacceptable. Turning the orchard into a parking lot is not an option for the Old Town neighborhood. We already have the railroad bridge and the sewage treatment plant. We deserve to keep the remaining green space. For that matter, turning any of Boones Ferry Park into a parking lot for a bike bridge is horrific for the neighborhood.
    a. Need to address camping in Old Town. Motor homes are coming to the park and trying to stay overnight. There was a motor home parked on Boones Ferry at the orchard when we left for this meeting tonight. This bridge will bring more overnight campers.
    b. The underrepresented populations on Tauchman are all renters. There are no homeowners on Tauchman. Just landlords who do not live there.
    c. Adding more traffic to Boones Ferry Rd. could be very problematic. It is already difficult to get in and out of Old Town at certain times.
    d. Did I really hear someone say this bridge would become the I-5 bridge in the event of an earthquake? Really?? That would destroy the neighborhood. That sounds extremely dangerous for the people who live on Boones Ferry. Crime to be concerned about is not only traffic and car problems. I'm talking about property crimes to the homeowners that live near this site. It is already on the increase with more people coming into Old Town to check out the river/potential bridge sides.
    e. More emphasis is being placed on future user experience (noise, etc.) than current homeowner and neighborhood impact.
2. Could use a better understanding of the timing for these regional trails and connectivity to this project.
    a. What would be the connection to Charbonneau on the South end. Needs to be off road (under I-5 bridge) W1 and W2 are coming down on wrong side of Butteville Road.
    b. If you're doing an EA on only one alignment need to show various approach alignments on each end to adequately address environmental impacts.
    c. Alignment 1 is relatively close to the railroad bridge. This bike/ped bridge (to be used also for emergency vehicles) will be designed to latest seismic codes, however railroad bridge is not-so proximity to the new bridge pier boating, etc. would need to be carefully evaluated.
    d. Alignment 3 is relatively close to the existing I-5 bridge. Need to evaluate proximity to I-5 bridge for future auxiliary lane widening and allowing for an in-water work

bridge between the two structures.

e. Whichever alignment is chosen needs to look at in water pier locations in relation to the existing railroad and I5 piers and existing boat ramp locations. With the activity of boating around the marina and those passing through more piers in the water in this location are just more problematic. I have a boat at Charbonneau marina so sometimes on the weekends this can get fairly bury.
f. The poorer the Charbonneau connection the more need for parking and at the south trailhead.
g. Is there an opportunity for a utility to use the bridge and share in the cost?

3. The numbers used on the evaluation criteria scoring seem subjective and biased toward the wants of the team; Totally different numbers could be established from a different viewpoint/personal experience.
4. Please consider Old Town residents. This bridge should be given the alignment tend has the least long-term impact on traffic on Boones Ferry Road. Alignment W3 preferred. W2 is second. Alignment W1 is least preferred. If we have to build this thing, please minimize impact of bikes on Boones Ferry Rd.

French Prairie Bridge Project

Scoring for City Council

April 12, 2018

A	Connectivity and Safety	W1	W2	W3	Notes
A-1	Connects to existing bike/pedestrian routes directly or using streets with sidewalks and bike lanes on north side of the bridge	7	3	4	Assume Boones Ferry Road connection slightly higher priority than I-5 undercrossing trail. W1: No pedestrian facilities. Direct connection to SB bike lane on Boones Ferry Rd. W2: Connects east & west via Tauchman St, with no pedestrian or bicycle facilities. W3: Non-direct connection along Tauchman St. to a path towards Memorial Park.
A-2	Connects to existing bike/pedestrian routes directly or using streets with sidewalks and bike lanes on south side of the bridge	2	2	3	No bike/ped routes exist on the south side. All connect directly to Butteville Road. W3: Connects to north side Butteville Road. No need to cross road to travel west or access marina.
A-3	Connects to planned bike/pedestrian routes on north side of the bridge	10	6	5	W1: Directly connects w/ regional Ice Age Tonquin Trail (IATT). Connects to EB local trail. W2: Non-direct connection to both IATT and EB local trail. W3: About the same as W2. Further from regional IATT.
A-4	Connects to planned bike/pedestrian routes on south side of the bridge	8	7	5	W1: Direct regional bike connection west and local ped/bike trail connection east. No planned ped. connection west. W2: Same as W1, but located further from regional connection. W3: Non-direct regional bike connection west and local ped/bike connection east. No planned ped. connection west.
20.0%	Criteria A Weighting	13.5	9.0	8.5	

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B	Emergency Access	W1	W2	W3	Notes
B-1	Connect to emergency routes directly, minimizing out of direction travel and response time at and near the north terminus	10	6	2	W1: Direct route from Wilsonville Road to Boones Ferry Rd. W2: Some out of direction travel through the park onto Tauchman St. W3: Significant out of direction travel through the park onto Tauchman St.
B-2	Connect to emergency routes directly, minimizing out of direction travel and response time at and near the south terminus	5	7	6	W1: Longest distant from I-5/Miley Rd. Slow access loop. W2: Fairly direct connection to I-5/Miley Rd. via Butteville Rd. with a less constrained access loop. W3: Closest access to I-5/Miley Rd., but requires out of direction travel.
B-3	Minimize emergency response impacts on residents, park activities, and marina operations	6	2	3	W1: Furthest from and least impact to residents, minor impact to marina access, minimal impact to parking. W2: Closer to residents on both sides of river, minimal impact to marina operations, major impact to middle of park. W3: Closest and most impacts to residents, no impact to marina, potential for impact to east edge of park facilities.
20.0%	Criteria B Weighting	14.0	10.0	7.3	

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C	Environmental Impacts	W1	W2	W3	Notes
C-1	Avoid or minimize adverse impacts on wildlife habitat and trees	7	8	2	W1: Some tree and vegetation impacts on south side. W2: Mostly avoids wildlife & trees impact. W3: Moderate impacts to wildlife & trees on both sides of river.
C-2	Avoid or minimize adverse impacts on waters and wetlands	6	7	2	W1: Minimal impacts to river with potential wetland impacts. W2: Minimal impacts to river with potential wetland impacts. W3: Minimal impacts to river with likely impacts to wetlands and tributary crossings.
C-3	Avoid or minimize adverse impacts on cultural and historic resources	5	6	6	W1: Known resources are present (orchard and ferry crossing). Moderate to high potential for impacts. W2: Moderate potential for impacts, but most areas are previously disturbed. W3: Avoids known resources. Moderate potential for impacts. Area is undisturbed, so unidentified resources are possible. **Each assessment based on potential for impacts as identified in the Opportunities and Constraints Report dated April 5, 2017.*
11.5%	Criteria C Weighting	6.9	8.1	3.8	

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D	Compatibility with Recreational Goals	W1	W2	W3	Notes
D-1	Provide a positive user experience (e.g. noise, aesthetics, view, security, compatible with other travel modes, exceeds design standards for turns and slopes)	8	9	3	W1: Secure/visible, view of RR bridge & river, some noise impact from train. Very good user experience. W2: Secure/visible, located away from existing bridges, least noise impact. Great user experience. W3: Natural setting, but less secure/visible. I-5 noise, least favorable views, wastewater plant nearby. Poor user experience.
D-2	Maximize compatibility with and flexibility for recreational uses including parks and the river on the north side.	9	4	8	W1: Compatible with existing park being located on edge of existing undeveloped park land. Easily integrate into future uses. W2: Minor displacement of existing open lawn and picnic area. Splits open lawn in half, limiting flexibility for future uses. W3: Compatible with existing park being located on edge of existing undeveloped park land. May limit incorporating local trail and existing drainage channel into future uses.
D-3	Maximize compatibility with and flexibility for recreational uses, including parks, the marina and the river on the south side.	6	3	6	W1: Compatible with existing use, but limits flexibility for marina parking, ramps, and slips. Limits use of land beneath bridge. W2: Similar to W1 with less parking impact, but potential building impacts. Parking impacts are more concerning to the County. W3: Avoids all related impacts. The Task force adjusted scores to reflect alignments closer to the Marina offer better recreational opportunities.
D-4	Maintain or improve river access	8	6	3	W1: Provides new river view from bridge. Provides best opportunity to improve river bank access via old ferry landing. W2: Provides best new views of river from the bridge. Limited opportunity to improve public access to the river bank. W3: Provides view of river to the west from the bridge. Little opportunity to improve river bank access due to I-5 Bridge, Wasterwater Treatment Plant outfall, and drainage channel.
20.0%	Criteria D Weighting	15.5	11.0	10.0	

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E	Compatibility with Existing Built Environment	W1	W2	W3	Notes
E-1	Minimize bridge location and access impacts on residences in Old Town	6	5	6	W1: Close to residents on Boones Ferry Rd. W2: Close to residents on Tauchman St and requires travel through the neighborhood, which includes underrepresented populations. W3: Not close to residents, but requires the most travel through the neighborhood, which includes underrepresented populations.
E-2	Minimize bridge location and access impacts on residences at south terminus in Clackamas County	6	2	3	No underrepresented populations identified south of the river. W1: In close proximity to one residence. W2: Directly impacts two small lot, waterfront residences. W3: Directly impacts two large lot rural residences.
E-3	Minimize bridge location and access impacts on marina facilities	6	5	10	W1: Potential impact to parking that can be mitigated. Impact to marina slips and operations not anticipated. W2: Impact to marina operations or building is anticipated, but can be mitigated. Impact to marina slips and parking not anticipated. W3: Avoids all marina impacts.
E-4	Minimize bridge location and access impacts to possible future infrastructure improvements (e.g. Railroad, ODOT)	6	10	1	W1: Located on railroad property, but can accommodate future improvements. Meeting w/RR provided confidence moving forward. W2: No impact to future infrastructure improvements. W3: Located on ODOT property, but can likely accommodate future infrastructure improvements, such as widening of I-5. The Task Force wanted to more strongly reflect ODOT's concern with this alignment.
17.0%	Criteria E Weighting	10.2	9.4	8.5	

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F		Cost and Economic Impact	W1	W2	W3	Notes
F-1		Minimize total project cost (e.g. bridge, retaining wall, on grade path, environmental mitigation). This project cost does not consider architectural features or amenities.	9	9	8	Design Team initial calculation based on relative cost as determined by the proportion of bridge (most expensive), wall, and on-grade path (least expensive) for each alignment. Then potential environmental mitigation qualitatively considered. W1: 1200-ft bridge; 5100-sq ft wall; 850-ft on-grade path. W2: 1160-ft bridge; 11400-sq ft wall; 740-ft on-grade path. W3: 1180-ft bridge; 2400-sq ft wall; 1400-ft on-grade path. Most significant mitigation.
F-2		Minimize property acquisition (e.g. right-of-way, easements) and avoid displacement of residences and businesses	9	3	6	W1: Minor impacts to two properties with no displacements anticipated. W2: Major/moderate impact to three properties with potential displacement of a residence and business. W3: Moderate/minor impact to three properties with no displacements anticipated. ODOT property impacted, but maintenance facility avoided.
F-3		Minimize the displacement of utilities	6	5	1	W1: Adjacent to underground gas line. Overhead power lines that can be easily relocated. W2: Crosses underground gas line. Overhead power lines on Butteville Road/River Vista intersection that can be easily relocated, but intersection presents more challenges. W3: Potential impact to wastewater treatment plant outfall pipe that cannot be easily relocated. Might conflict with bridge foundation even if in proximity rather than directly. The Task force adjusted scores to reflect possible economic opportunities for utilities to participate in project costs if the bridge could accommodate one or more utilities.
F-4		Maximizes economic benefit through tourism and access to commercial and regional destinations and trail system connections	9	9	6	W1: Provides significant benefit to local and regional economies. Closest to regional trails and parks, directly connects to Boones Ferry Rd, some noise impact from railroad. Also see D-1. W2: Provides significant benefit to local and regional economies. Good connection to regional trails and parks, good views, limited impact from I-5 and railroad. Also see D-1. W3: Provides some benefit to local and regional economies. Furthest from regional trails and parks, close to I-5, noise impacts, some out of direction travel. Also see D-1.
11.5%		Criteria F Weighting	9.5	7.5	6.0	
100%	**Total, Weighted Score**		70	55	44	